Design & Consultancy for natural and built assets

Mr. Brian Bastek
RCRA Corrective Action and Permitting Section
RCRA Cleanup and Brownfields Branch
U.S. Environmental Protection Agency, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW
Atlanta, Georgia 30303-8960

Arcadis U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70816
Tel 225 292 1004
Fax 225 218 9677
www.arcadis.com

ENVIRONMENT

Subject:
Vapor Intrusion Assessment Report
Grenada Manufacturing, LLC, Grenada, Mississippi

Date:
June 1, 2016

Contact:
John Ellis

Extension:
208

Email:
john.ellis@arcadis.com

Our ref:
LA003307.0001.00008

Dear Mr. Bastek:

Arcadis U.S., Inc., on behalf of Grenada Manufacturing, LLC, is submitting the Vapor Intrusion Assessment Report as required by the approved Interim Measures Work Plan, dated September 11, 2015.

Please contact me if you have any questions regarding the attached report.

Sincerely,

Arcadis U.S., Inc.

John Ellis
Senior Project Manager

Copies:
Grenada Manufacturing, LLC

Attachment

VAPOR INTRUSION ASSESSMENT REPORT

Prepared for Grenada Manufacturing LLC

June 1, 2016

{W0291502; 1}

VAPOR INTRUSION ASSESSMENT REPORT

I have reviewed this document in sufficient depth to accept full responsibility for its contents.

George E. Cook, RPG
Staff Geologist
Mississippi Registration Number 0889

John Ellis
Associate Vice President/Certified Project Manager

Prepared for:

Grenada Manufacturing, LLC
635 Highway 332
Grenada, Mississippi 38901

Prepared by:

Arcadis U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70816
Tel 225 292 1004
Fax 225 218 9677

Our Ref.:

LA003307.0001.00008

Date:

June 1, 2016

CONTENTS

TABLES

TABLES (CONTINUED)

FIGURES

APPENDICES

EXECUTIVE SUMMARY

Arcadis U.S., Inc., has prepared this Vapor Intrusion (VI) Assessment Report on behalf of Grenada Manufacturing, LLC, for the facility located at 635 MS-332, Grenada, Mississippi (facility). The VI assessment focused on a residential area north of the facility in a neighborhood known as Eastern Heights and, more specifically, on six houses located along Lyon Drive. These six houses are herein referred to as the VI Focus Area. Components of the VI assessment included sampling and analysis of indoor air, ambient air, sub-slab vapor, soil gas, groundwater, and soil, as well as collection of geotechnical samples. Additionally, potential receptors, exposure routes, and migration pathways were assessed.

The VI assessment and scope of work were detailed in the revised Interim Measures Work Plan (IMWP) dated August 28, 2015 (subsequent final revision dated September 11, 2015), and conditionally approved by U.S. Environmental Protection Agency (USEPA) Region 4 in their September 4, 2015, letter. The constituents of concern (COC) list was detailed in the revised IMWP and also approved by the USEPA. The scope of work included the following:

- Installation and two rounds of sampling of eight soil gas ports (SG-1 through SG-8) in the vicinity of the VI Focus Area.
- Collection and analysis of two rounds of ambient air, indoor air, and sub-slab vapor samples from the six homes in the VI Focus Area.
- Installation of ten vertical aquifer profiling borings located in the vicinity of the VI Focus Area and collection and analysis of soil and groundwater samples from these borings. These samples were analyzed for a wider range of constituents, beyond the VI COC list, including volatile organic compounds (VOCs), semivolatile organic compounds, and metals.

Field activities were conducted in September 2015, October 2015, and March 2016. The laboratory results of the samples collected were evaluated against the USEPA residential Vapor Intrusion Screening Levels (VISLs) to screen for potential impacts to residential homes in the VI Focus Area. Additionally, data collected during the assessment activities were used in the “multiple lines of evidence” approach discussed in the USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (USEPA 2015) (OSWER Technical Guide).

Based on the VI assessment conducted in the VI Focus area and its vicinity, the following key findings have been identified:

- Indoor air detections of trichloroethene (TCE) and some other VOCs during the September 2015 sampling event were similar to ambient air concentrations, indicating the typical exchange of indoor air with ambient air.
- Other VOCs detected in the indoor air samples appear to be from background sources because most of these VOCs were not detected in either shallow groundwater or sub-slab vapor samples.
- Utility corridors (from leakage or transport within the corridor) and shallow soils are potential sources of the other VOCs that are not related to VI from a groundwater source.

- TCE concentrations observed in shallow groundwater above the groundwater-to-vapor VISL were limited and sporadic in this assessment and in past investigations.
- The surficial soil is primarily silt and clay with a high moisture content and low air-filled porosity. The geotechnical properties demonstrate that the surficial soils have a low potential for vapor migration.
- The VI pathway is incomplete.

1 INTRODUCTION

Arcadis U.S., Inc. (Arcadis) has prepared this Vapor Intrusion (VI) Assessment Report on behalf of Grenada Manufacturing, LLC for the facility located at 635 MS-332, Grenada, Mississippi (facility). This VI Assessment Report documents the performance of the scope of work agreed upon by Grenada Manufacturing, LLC, and U.S. Environmental Protection Agency (USEPA) Region 4 in the revised Interim Measures Work Plan (IMWP) dated August 28, 2015 (subsequent final revision dated September 11, 2015) and included in Appendix A. The revised IMWP was conditionally approved by USEPA Region 4 in a letter dated September 4, 2015, which is also included in Appendix A.

The VI assessment focused on a residential area north of the facility and, more specifically, on six houses located along Lyon Drive. These six houses are referred to as the VI Focus Area. The location of the facility and VI Focus Area are shown on Figures 1 and 2. The VI assessment included sampling and analysis of indoor air, ambient air, sub-slab vapor, soil gas, groundwater, and soil, as well as collection of geotechnical samples. Additionally, potential receptors, exposure routes, and migration pathways were assessed.

2 BACKGROUND

Based on monitoring results from groundwater sampling conducted at Monitoring Well MW-20 located north of the facility, 17 soil gas monitoring probes (VP-1 through VP-17) were installed and sampled to further assess this area. Groundwater samples also were obtained from sample locations WL-1, WL-2, WL-6, WL-10, WL 11, WL-12, WL-13, WL-15, WL-16, WL-17, and TW-18S/D. The groundwater sample locations correspond to the soil gas monitoring probes (VPs) with the same number. Subsequently, six additional soil gas monitoring probes (VP 101, VP-103, VP-108, VP-110, VP-112, and VP-114) were installed and sampled. Sample locations are shown on Figure 2.

Given the construction of the soil gas monitoring probes, groundwater is sometimes encountered in probes; therefore, water samples were collected from the following monitoring probes: VP-1, VP-2, VP-4, VP-5, VP-6, VP-7, VP-8, VP 10, VP-11, VP-12, VP-14, VP-15, VP-16, VP-17, VP 101, VP-103, VP-106, VP 107, VP-108, VP-110, VP-112, and VP-114. The data and a preliminary evaluation from the sampling were submitted to USEPA Region 4 in a letter dated January 17, 2014. A figure summarizing the groundwater data obtained from the soil gas monitoring probes is provided in Appendix B.

More recently, additional groundwater evaluations were conducted in several areas around the facility. A report entitled Moose Lodge Road Area Additional Investigation Report: Comprehensive Study Area Groundwater Evaluation was submitted to the USEPA in February 2016 (T&M 2016). This report provided a summary of recent and historical investigations and monitoring work completed throughout the study area.

2.1 Facility Location

The facility is located in Grenada County in Grenada, Mississippi. It is bounded by Grenada Railroad tracks to the north, beyond which is the Eastern Heights residential neighborhood , by Grenada Railway railroad tracks and a stoneyard to the east/northeast, and by vegetated land to the west and south, beyond which is the Yalobusha River.

2.2 Climate

Based on the Grenada, Mississippi, weather station (KMSGRENA5), the average daily temperature in Grenada, Mississippi, over the last 5 years is 63.4 degrees Fahrenheit (ºF). The average annual daily low temperature over the last 5 years is 32.2ºF in January. The average annual daily high temperature over the last 5 years is 91.6ºF in August. The total annual precipitation over the last 5 years is 46.37 inches. Winds are typically from the west-southwest (http://www.wunderground.com).

2.3 Land Use

The approximately 24-acre facility is zoned for industrial use and is surrounded by a mixture of industrial/commercial, residential, and agricultural use (Grenada County Assessor's Office). The future use of the facility is expected to remain consistent with the current land use.

2.4 Surface Water Hydrology

There are surface water bodies on the boundary and in the immediate vicinity of the facility. The nearest major surface water body is Riverdale Creek, which is located on the west/northwestern facility boundary and flows in a southwestwardly direction into the Yalobusha River. The Yalobusha River is located approximately 0.6 mile south and east of the facility property boundaries and flows southwest, west and northwest in the general vicinity of the facility. Grenada Lake is located northeast of the facility and discharges into the Yalobusha River by a spillway controlled by the U.S. Army Corps of Engineers. A storm water retention pond is located on the north side of the facility.

Storm water in the vicinity of the facility is collected by a series of ditches and culverts that ultimately discharge into Riverdale Creek. Storm water in the vicinity of the VI Focus Area is collected by a series of surface grates above subsurface catch basins and diverted to underground storm water lines and aboveground culverts that discharge to a storm water ditch south of the Grenada Railway railroad tracks, ultimately discharging into Riverdale Creek.

2.5 Geology and Hydrogeology

This VI assessment focuses on the surficial silt and clay layer and the first encountered water-bearing unit (the Upper Aquifer). Subsurface stratigraphy in the VI Focus Area consists of a silty clay layer, which extends from the ground surface to approximately 6 to 12 feet below the ground surface (ft bgs). This silty clay layer is underlain by approximately 30 to 50 feet of silty sand, which is then underlain by a thick clay unit at depth. The shallowest water-bearing unit is the silty sand layer, with groundwater encountered approximately 10 to 15 ft bgs.

Regional groundwater flow in the upper groundwater-bearing unit is generally west/northwest toward Riverdale Creek. This description of the local potentiometric surface in the upper groundwater-bearing unit is based on depth-to-water measurements collected in May 2014 by T&M Associates (T&M 2014a). A more comprehensive discussion of the facility geology and hydrogeology is provided in the Moose Lodge

Road Area Additional Investigation Report: Comprehensive Study Area Groundwater Evaluation (T&M 2016).

2.6 Water Use

To determine water uses near the facility, Arcadis contacted the City of Grenada Water/Sewer Department, which confirmed that the facility and the Eastern Heights neighborhood are supplied by municipal water.

2.7 Community Outreach

On September 1, 2015, the USEPA conducted an outreach meeting with community members in the VI Focus Area. The purpose of this outreach was to disseminate information regarding facility history, constituents being assessed, VI information, and the sampling process, and to obtain access to their homes for sampling purposes. The USEPA obtained approval and signed access agreements from the six property owners in the VI Focus Area at the meeting and/or in the subsequent days. The USEPA continues to provide community outreach through meetings and fact sheets.

3 CONSTITUENTS OF CONCERN

The constituents of concern (COCs) for the VI assessment were cis-1,2-dichloroethene (cis-1,2-DCE), TCE and Vinyl Chloride (VC), based on groundwater monitoring work completed in the period from 2012 through 2015. Following initial review of the IMWP, USEPA added compounds to the list and provided conditional IMWP approval in a letter dated September 4, 2015. The full list of compounds approved for sampling and analysis in the VI Focus Area by USEPA in the IMWP approval letter included the following volatile organic compounds (VOCs):

- 1,1-Dichloroethene (1,1-DCE)
- 1,2-Dichloroethane (1,2-DCA)
- cis-1,2-Dichloroethene (cis-1,2-DCE)
- trans-1,2-Dichloroethene (trans-1,2-DCE)
- Tetrachloroethene (PCE)
- 1,1,2-Trichloroethane (1,1,2-TCA)
- TCE
- Vinyl chloride
- Benzene
- Toluene
- Ethylbenzene*
- Xylenes*

- 1,2,4-Trimethylbenzene (1,2,4-TMB)
- Chloroform
- Methylene chloride

*Ethylbenzene and xylenes were analyzed at the USEPA's request to evaluate background concentrations in the structures that were sampled.

Soil and groundwater samples were analyzed for the following parameters as required by USEPA:

- VOCs
- Semivolatile Organic Compounds (SVOCs)
- Resource Conservation and Recovery Act (RCRA) Metals
- Hexavalent Chromium

4 VAPOR INTRUSION ASSESSMENT

Based on TCE concentrations detected in groundwater above the calculated groundwater-to-indoor-air VI screening level (VISL) at Monitoring Well MW-20, a potential VI risk was identified in a portion of the Eastern Heights neighborhood. See OSWER Technical Guide. Six houses along Lyon Drive located above the TCE groundwater plume were proposed and approved as the VI Focus Area. MW-20 is located between the VI Focus Area and the facility. Potentiometric surface maps prepared by T&M Associates suggest that shallow groundwater flows toward the west-northwest in this area (T&M 2014b and T&M 2016).

The VI assessment included sampling and analysis of indoor air, ambient air, and sub-slab vapor in the VI Focus Area and soil gas, groundwater, and soil in the vicinity of the VI Focus Area. Additionally, potential receptors, exposure routes, and migration pathways were assessed. This assessment is consistent with approaches described in the OSWER Technical Guide, and generated information for use in a “multiple lines of evidence” evaluation. The following sections provide further details regarding the VI assessments completed in September/October 2015 and March 2016.

4.1 Potential Receptors and Exposure Routes

The VI assessment addressed potential receptors in the VI Focus Area. Potential receptors in the VI Focus Area could be exposed to vapors in indoor air that partition from impacted groundwater from the plume identified beneath the southern portion of the Eastern Heights neighborhood. Potential receptors in the VI Focus Area also could be exposed to vapors occurring along utility corridors or other preferential vapor migration pathways. Moreover, potential receptors off the facility property and outside the areas of the affected groundwater could be exposed to constituents in indoor air due to the migration of vapors along utility corridors or other preferential vapor migration pathways.

4.2 Vapor Intrusion Screening Criteria

The USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 3.4 (a look-up table for screening values used by USEPA), provides screening levels for residential indoor air, ambient air, sub-slab vapor, soil gas, and the groundwater to indoor air pathway. These VISLs are based on the lower of either a target cancer risk of 1E-6 or target hazard index of 1, and are further based on current USEPA toxicological risk evaluations utilizing sensitive receptor populations. The VISLs are shown in Table 1. The VISL for groundwater to indoor air was derived from sampling events at MW-20.

4.3 Vapor Intrusion Laboratory Analysis

Sampling media were ordered from Eurofins Air Toxics, Inc., in Folsom, California, using proper quality assurance/quality control (QA/QC) and chain-of-custody protocols. Air samples (soil gas, ambient air, indoor air, and sub-slab vapor) were analyzed using USEPA Compendium Method TO-15 for the COC and non-COC list previously identified

4.4 Soil Gas Assessment

Eight shallow soil gas ports (SG-1 through SG-8) were installed in proximity to the existing deeper soil gas monitoring probes (VP-2 through VP-6, VP-13, and VP-17) because these earlier probes indicated TCE concentrations above the VISLs. As discussed in Section 2.5, Geology and Hydrogeology, there is a silty clay layer that extends from the ground surface to approximately 6 to 12 ft bgs, which is underlain by approximately 30 to 50 feet of silty sand in the VI Focus Area. The existing soil gas ports were screened at the clay/sand interface or deeper within the water-bearing sand layer. The soil gas ports installed as part of this VI assessment were installed within the surficial clay layer to evaluate the potential migration of VOCs from the potential groundwater source to indoor air.

4.4.1 Soil Gas Port Installation

On September 15 and 16, 2015, eight soil gas ports (SG-1 through SG-8) were installed in the vicinity of the VI Focus Area. The locations are shown on Figure 2. A track-mounted Geoprobe® was used to create an open borehole, and a 2.25-inch-diameter Macro-Core® sampler was used to remove soil from the boring. As part of the reconnaissance, a utility locate identified buried utilities in the vicinity of the structures in the VI Focus Area and soil gas ports prior to installation.

Soil was classified in the field by a geologist. Each soil gas port installed for the VI assessment was screened near the bottom of the surficial clay layer (generally about one foot above the clay-sand interface) to determine potential vapor migration from vapor partitioning from impacted groundwater. Soil gas ports SG-1 through SG-4 and SG-6 were installed to a depth of 6 ft bgs and screened from 5.5 to 6 ft bgs. Due to variations in the depth of the surficial clay layer, some of the soil gas ports were installed shallower to stay within the surficial clay unit. SG-5 was installed to a depth of 5.5 ft bgs and screened from 5 to 5.5 ft bgs, SG-7 was installed to a depth of 3.25 ft bgs and screened from 2.75 to 3.25 ft bgs, and SG-8 was installed to a depth of 3.5 ft bgs and screened from 3 to 3.5 ft bgs.

Soil gas ports were constructed of 0.25-inch Teflon tubing with 6-inch stainless steel screens. Each screen was installed with filter pack sand placed around the screen to 6 inches above the screen.

Granular bentonite was used to fill the remainder of the borehole above the screen filter pack to the surface and was hydrated during installation. At the surface, the end of the tubing was equipped with a Swagelok® fitting and a stainless steel gas-tight valve. Upon completion of the installation and sealing of each soil gas port, the volume of air in the sand pack was calculated and approximately three times this volume of air was purged using a 60-milliliter (mL) syringe with a three-way valve at a rate of approximately 100 mL per minute (mL/min). A protective cover was installed at the surface. Boring logs and construction logs for the soil gas ports are provided in Appendix C.

4.4.2 Soil Gas Port Sampling

September/October 2015 Event

On September 16 and 17, 2015, approximately 24 hours after installation, each soil gas port was sampled using 1-liter stainless steel SUMMA® canisters with calibrated flow controllers that were cleaned and certified by the laboratory. The flow controllers were calibrated for a sampling duration of 10 minutes (≈ 80 mL/min). Approximately one to three times the volume of air in the filter pack/tubing was purged at a rate of 100 mL/min using a 60-mL syringe with a three-way valve prior to sampling. The amount and rate of volumes purged were measured and recorded in the field and remained consistent among sample locations. The sampling procedure consisted of connecting the purge syringe to the soil gas port, then opening the syringe valve, then opening the soil gas port valve to purge the tubing. At completion of purging, the valve on the soil gas port was closed, the purge syringe was removed, and then the sampling canister and flow controller were connected to the soil gas port. The sampling canister was opened, and then the valve on the soil gas port was opened. At the completion of sampling, the canister was closed first and then the soil gas port valve. A final canister vacuum on the flow controller ranging from 2 to 5 inches of mercury signified that sample collection was complete. At the completion of sampling, the canister was closed and the valve on the soil gas port was closed. The canister and flow controller were removed from the soil gas port.

Due to variability in flow controller gauges, the canisters were gauged with a calibrated independent gauge and the final vacuum recorded. The canisters were closed and sealed with a brass Swagelok® cap. Final soil gas canister vacuums from the independent gauge ranged from 3.5 to 6.5 inches of mercury. Due to a laboratory error, the soil gas samples collected at soil gas ports SG-4, SG-7, and SG-8 during the September 2015 sampling event were not analyzed. Arcadis returned to the VI Focus Area on October 7, 2015, to collect new samples from these three soil gas ports, following the procedures detailed above. Final soil gas canister vacuums from the independent gauge ranged from 5 to 6 inches of mercury.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) were collected before and during sampling activities and are provided as Appendix D.

March 2016 Event

As specified in the conditionally approved IMWP, a second sampling event was performed on March 2, 2016, in the opposite season from the initial sampling event. This seasonal sampling event followed the same procedures as the September/October 2015 event. However, water was encountered in soil gas ports SG-1, SG-2, SG-4, and SG-5 during purging and sampling; therefore, soil gas samples from these soil gas ports could not be collected and submitted for analysis. Geotechnical analysis of the localized surficial clay layer in October 2015 indicates mostly water-filled porosity with minimal air-filled porosity. The water encountered in the soil gas ports likely is due to the migration of water from the clay into the more permeable sand pack around the screens of the soil vapor probes. There was no indication that surface water had entered the soil gas ports. The presence of water in SG-1, SG-2, SG-4 and SG-5 likely indicates saturation conditions in the silty-clay soil surrounding the probes. After sampling the remaining soil gas ports (SG-3, SG-6, SG-7, and SG-8), the final soil gas canister vacuums from the independent gauge ranged from 5 to 12 inches of mercury.

4.4.3 Soil Gas Port Leak Testing

In accordance with USEPA guidance, leak testing initially was performed on the soil gas ports prior to the September 2015 sampling event. Leak testing was accomplished by enriching the atmosphere in the immediate vicinity of the area where the port intersects the ground with tracer gas helium and measuring a vapor sample from the port for the presence of high concentrations (>10 percent) of the helium. A shroud consisting of a 1-gallon container equipped with two gas valves was placed over the soil gas ports. The tubing assembly was passed through the shroud to the outside through a hole that was then sealed with modeling clay. Then the shroud was sealed to the ground with modeling clay. A cylinder of laboratory-grade compressed helium gas was connected to one gas valve, and helium was introduced to the shroud at a slow rate in order to not pressurize the shroud.

A Dielectric MGD-2002 Helium Detector was used to measure the amount of helium in the shroud by inserting the detector probe into the second gas valve in the shroud. Once a minimum of 60 percent helium was detected in the shroud, the soil gas port was then purged and the purged air collected in a Tedlar® bag. The helium detector then was used to screen the sample aliquot in the Tedlar® bag. If less than 10 percent helium was detected in the Tedlar® bag, a SUMMA® canister was attached to the tubing assembly and the sample collected while the helium concentration within the shroud was maintained at a minimum of 60 percent. At the completion of sample collection, an aliquot of air was purged again from the port and screened for helium. If less than 10 percent helium was detected in the Tedlar® bag, the sample was submitted to the laboratory for analysis. If greater than 10 percent helium was detected in the Tedlar® bag, the sample was not analyzed. All of the soil gas ports passed the helium leak test procedure.

4.4.4 Soil Gas Data Results

Soil gas data are summarized in Table 2 and are depicted on Figure 3. Copies of the laboratory reports are provided in Appendix E.

<u>September/October 2015 Event</u>

The following constituents were detected above the exterior soil gas VISLs:

- Benzene (SG-6)
- Chloroform (SG-3, SG-5, SG-6, SG-7)

The following constituents were detected below the exterior soil gas VISLs:

- Benzene (SG-2, SG-3)
- Ethylbenzene (SG-1, SG-5, SG-6)

- Toluene (SG-5, SG-6)
- TCE (SG-8)
- 1,2,4-TMB (SG-5, SG-6, SG-7)
- m,p-Xylenes (SG-1, SG-5, SG-6, SG-7)
- o-Xylenes (SG-5, SG-6, SG-7)

March 2016 Event

There were no constituents detected above the exterior soil gas VISLs.

The following constituents were detected below the exterior soil gas VISLs:

- TCE (SG-8)
- m,p-Xylenes (SG-7)

4.5 Residential Home VI Assessment

The residential home VI assessment conducted in September 2015 and March 2016 included indoor air and sub-slab vapor sampling from the six residential structures (House #1 through House #6) within the VI Focus Area, and ambient air sampling upwind and downwind of these six structures (Figure 3). The six residential structures were selected based on their relative proximity to known groundwater impacts (MW-20) and potential soil gas impacts (VP-2, VP-3, VP-5, VP-6). Only four of these structures (House #2 through House #4) are within 100 feet of the known groundwater or potential soil gas impacts. The other two properties, east and west of the potentially impacted area, were assessed as a conservative measure.

The sample IDs and corresponding physical addresses are summarized below.

House Number	Sample IDs	Physical Address
House #1	1-IA/1-SS	[redacted]
House #2	2-IA/2-SS	[redacted]
House #3	3-IA/3-SS	[redacted]
House #4	4-IA/4-SS	[redacted]
House #5	5-IA/5-SS	[redacted]
House #6	6-IA/6-SS	[redacted]

Redaction(s)
subject to Exemption 6 (Personal Privacy Information)

4.5.1 Ambient Air

4.5.1.1 Sampling

September 2015 Event

On September 22, 2015, ambient air sampling equipment consisting of 6-liter stainless steel SUMMA® canisters with calibrated flow controllers that were cleaned and certified by the laboratory were deployed, and sampling was initiated. The ambient air canisters were securely positioned at a level equivalent to the breathing zone and located on the northwest side of House #1 (Location 1-AA) and on the southeast side of House #6 (Location 2-AA). The canisters utilized flow controllers calibrated for a 24-hour sample collection. The ambient air sampling was completed on September 23, 2015, approximately 24 hours after deployment. The canister was collected when the final canister vacuum on the flow controller was measured at between 2 and 5 inches of mercury. At the completion of sampling, the canister was closed and the flow controller removed. Due to variability in flow controller gauges, the canisters were gauged with a calibrated independent gauge and the final vacuum recorded. The canisters were closed and sealed with a brass Swagelok® cap. Final ambient air canister vacuums from the independent gauge ranged from 7.25 to 9.0 inches of mercury. The ambient air sample locations are shown on Figure 2. The wind direction was from the northeast during the sampling event, as determined by Weather Underground (http://www.wunderground.com); therefore, “1-AA” was placed in the downwind position and “2-AA” was placed in the upwind position.

Three wind roses (Appendix D) were prepared from meteorological data obtained from the Greenwood Regional Airport, which is approximately 25 miles southwest of Grenada. One wind rose depicts the conditions during the day of sampling, a second wind rose depicts the conditions one week prior to sampling, and the third wind rose depicts the conditions for one year prior to sampling. The wind rose for the day of sampling documents that the winds were from the northeast. The winds one week prior to sampling were primarily from the north and east. The winds for one year prior to sampling were primarily from the north and south, with some winds from the northeast and southwest.

March 2016 Event

The second sampling event was performed on March 2 and 3, 2016, in the opposite season from the initial sampling event. This seasonal sampling event followed the same procedures as the September 2015 event, and ambient air canisters were placed in the same locations as for the previous event. During the sampling event, wind was primarily from the northwest; however, there was some variability with the wind direction (wind was from the east when rain was present). After sampling, the final ambient air canister vacuums from the independent gauge ranged from 6 to 6.5 inches of mercury.

The wind rose for the day of sampling documents that the winds were variable, but primarily from the east. The winds one week prior to sampling were primarily from the southwest. The winds for one year prior to sampling were primarily from the north and south, with some winds from the northeast and southwest.

4.5.1.2 Results

Ambient air data are summarized in Table 3 and are depicted on Figure 3. Copies of the laboratory reports are provided in Appendix E.

September 2015 Event

Ambient air analytical results were compared to residential indoor air VISLs. The following constituent was detected above the residential indoor air VISL:

- TCE (1-AA and 2-AA)

March 2016 Event

Ambient air analytical results were compared to residential indoor air VISLs. No VOCs were detected above the VISLs. The following constituents were detected below the residential indoor air VISLs or do not have established residential indoor air VISLs:

- Benzene (1-AA and 2-AA)
- cis-1,2-DCE (1-AA and 2-AA)
- Ethylbenzene (2-AA)
- Toluene (1-AA and 2-AA)
- Vinyl chloride (1-AA and 2-AA)
- m,p-Xylenes (1-AA and 2-AA)
- o-Xylenes (1-AA and 2-AA)

4.5.2 Indoor Air

4.5.2.1 Reconnaissance of Structures

A reconnaissance of the six residential structures was performed on September 21, 2015, prior to conducting sampling activities, as specified in the approved IMWP. A visual inspection of the structures' interiors and exteriors was performed to identify potential preferential pathways (such as utilities) for vapor migration into the structures, and to identify any background sources or other factors that could affect indoor air quality. Another reconnaissance was conducted prior to the seasonal sampling event performed on March 2, 2016, to confirm that conditions had not changed from the initial sampling event.

As part of the reconnaissance, information was gathered from the homeowner/occupant on potential sources within each structure, ventilation systems, and building construction. Copies of the indoor air building survey and sampling forms are provided in Appendix F. Potential background sources that were identified were removed from the structure during the VI sampling event.

4.5.2.2 Sampling

The indoor air sample locations are included in the completed indoor air building and sampling surveys provided in Appendix F. Samples collected from the residential structures were given a unique identification to conceal the identity of the sample locations.

September 2015 Event

On September 22, 2015, indoor air sampling equipment consisting of 6-liter stainless steel SUMMA® canisters with calibrated flow controllers cleaned and certified by the laboratory was deployed. The ambient air canisters were securely positioned at a level equivalent to the breathing zone for the most sensitive exposed population and located near the center of the structure. Because all six of the structures sampled are single-story, slab-on-grade construction and are less than 1,500 square feet in size, one indoor air sample was collected at each structure. The canisters utilized flow controllers calibrated for a 24-hour sample collection.

All indoor air samples were collected under normal home conditions. The indoor air sampling was completed on September 23, 2015, approximately 24 hours after deployment. A final canister vacuum on the flow controller between 2 and 5 inches of mercury signified that sample collection was complete. At the completion of sampling, the canister was closed and the flow controller removed. Due to variability in flow controller gauges, the canisters were gauged with a calibrated independent gauge and the final vacuum recorded. The canisters were closed and sealed with a brass Swagelok® cap. Final indoor air canister vacuums from the independent gauge ranged from 7 to 9.5 inches of mercury.

A duplicate indoor air sample canister was deployed; however, due to a malfunction in the flow controller, the duplicate indoor air canister did not collect a sample. Thus, a duplicate sample was not available for laboratory analysis.

March 2016 Event

A second sampling event was performed on March 2 and 3, 2016, in the opposite season from the initial sampling event. This seasonal sampling event followed the same procedures as the September 2015 event, and indoor air canisters were placed in the same locations as the previous event. After sampling, the final ambient air canister vacuums from the independent gauge ranged from 5.5 to 14 inches of mercury.

4.5.2.3 Results

Indoor air data are summarized in Table 3 and are depicted on Figure 3. Copies of the laboratory reports are provided in Appendix E. Indoor air analytical results were compared to residential indoor air VISLs.

September 2015 Event

The following constituents were detected above the residential indoor air VISLs:

- Benzene (1-IA, 2-IA, 4-IA, 5-IA)
- Chloroform (1-IA, 2-IA, 3-IA, 4-IA, 5-IA, 6-IA)
- 1,2-DCA (1-IA, 2-IA, 4-IA, 5-IA)

- TCE (1-IA, 2-IA, 4-IA, 5-IA, 6-IA)

The following constituents were detected below the residential indoor air VISLs or do not have established residential indoor air VISLs:

- cis-1,2-DCE (1-IA, 2-IA, 4-IA, 5-IA, 6-IA)
- Ethylbenzene (1-IA, 2-IA, 4-IA, 5-IA, 6-IA)
- Toluene (1-IA, 2-IA, 3-IA, 4-IA, 5-IA, 6-IA)
- m,p-Xylenes (1-IA, 2-IA, 4-IA, 5-IA, 6-IA)
- o-Xylenes (1-IA, 2-IA, 4-IA, 5-IA, 6-IA)

March 2016 Event

The following constituents were detected above the residential indoor air VISLs:

- Benzene (1-IA, 4-IA, 6-IA)
- Chloroform (1-IA, 4-IA, 6-IA)
- 1,2-DCA (1-IA, 2-IA)

The following constituents were detected below the residential indoor air VISLs:

- Benzene (5-IA)
- Ethylbenzene (1-IA, 2-IA, 4-IA)
- Toluene (1-IA, 2-IA, 3-IA, 4-IA, 5-IA, 6-IA)
- m,p-Xylenes (1-IA, 2-IA, 3-IA, 4-IA, 6-IA)
- o-Xylenes (1-IA, 2-IA, 4-IA)

4.5.3 Sub-Slab Air

4.5.3.1 Port Installation

On September 21, 2015, in accordance with USEPA guidance, a permanent sub-slab vapor port was installed in the concrete floor near the center of each structure for collecting sub-slab vapor samples. The sub-slab ports were placed in an unobtrusive location within each home to minimize disturbance of the residents. The ports were installed after conducting the indoor air building and sampling survey, and approximately 24 hours prior to collection of the indoor air sample from that structure. The sub-slab vapor ports lie flush on the upper surface of the concrete floor and “float” in the slab to enable collection of vapors from sub-slab material in direct contact with the slab or from a pocket of air directly beneath the slab created by sub-slab material subsidence. New stainless steel Vapor Pins™ were utilized. The Vapor Pins™ were preassembled for each installation prior to drilling through the floor to minimize exposure time of the sub-slab soils to an open hole.

To install the sub-slab vapor ports, a rotary hammer drill was used to drill a 1.125-inch-outer-diameter hole approximately 2 inches into the floor. The inside of the 1.125-inch-outer-diameter hole was cleaned with a damp towel, and then a 0.625-inch-outer-diameter hole was drilled through the remainder of the concrete. Once through the concrete, the drill was allowed to penetrate an additional 2 to 3 inches into the sub-slab material. The outer-diameter hole was cleaned once more with a damp towel. The Vapor Pins™ were pressed into the concrete slab and sealed with the supplied non-VOC silicone sleeve. After the sub-slab vapor port was set, a small aliquot of air was purged into a Tedlar® bag so as not to introduce potential vapors to the building interior. A protective cap was placed on the end of the Vapor Pin™ and finished with a stainless steel thread-on flush-mount cover. Once the sub-slab vapor port was installed, it was allowed to set for approximately 48 hours prior to sampling. These sub-slab vapor ports will remain in place until no longer needed; they will then be removed, the holes patched, and the home returned to its original condition to the extent possible.

4.5.3.2 Sampling

<u>September 2015 Event</u>

On September 23, 2015, the sub-slab vapor samples were collected immediately after obtaining the indoor air samples. The sub-slab vapor samples were collected using 1-liter stainless steel SUMMA® canisters that were cleaned and certified by the laboratory with a calibrated flow controller. The flow controller was calibrated for a sampling duration of 10 minutes (≈80 mL/min). The sub-slab samples were collected by assembling a short (≈16 inches) length of 0.25-inch-diameter Teflon tubing fitted with stainless steel Swagelok® tube connectors at one end that connected directly to the sampling canister and non-VOC silicone tubing that connected directly to the sub-slab vapor port. A stainless steel gas-tight valve was installed near the canister end of the sample tubing. The sample assembly was connected to the sub-slab vapor port, and approximately three volumes of air from the sample assembly were purged at a rate of approximately 100 mL/min prior to sampling, using a 60-mL syringe into a Tedlar® bag so as not to introduce potential vapors to the building interior. The sampling canister was then connected and opened, and then the valve on the sample assembly was opened. A final canister vacuum on the flow controller reading between 2 and 5 inches of mercury signified that sample collection was complete. At the completion of sampling, the canister was closed first followed by the sample assembly to the sub-slab vapor port valve. Due to variability in flow controller gauges, the canisters were gauged with a calibrated independent gauge and the final vacuum recorded. The canisters were closed and sealed with a brass Swagelok® cap. The final canister vacuums from the independent gauge ranged from 4.5 to 7 inches of mercury.

Each sub-slab vapor port was leak tested following the procedures outlined in Section 4.3.3 of this report. All sub-slab ports passed the helium leak test with the exception of the aliquot of purged air collected after sampling at sub-slab port SS-2, with 20 percent helium detected in the Tedlar® bag. The sub-slab sample collected at SS-2 was analyzed, and results were similar to sub-slab results from neighboring houses, as further discussed in the next section of this report.

<u>March 2016 Event</u>

A second sampling event was performed on March 3, 2016, in the opposite season from the initial sampling event. This seasonal sampling event followed the same procedures as the September 2015 event. After sampling, the final canister vacuums from the independent gauge ranged from 4.5 to 5.75 inches of mercury.

4.5.3.3 Results

Sub-slab data are summarized in Table 3 and are depicted on Figure 3. Copies of the laboratory reports are provided in Appendix E. Sub-slab analytical results were compared to residential sub-slab vapor VISLs.

<u>September 2015 Event</u>

The following constituents were detected above the sub-slab vapor VISLs:

- Chloroform (6-SS)
- TCE (1-SS/duplicate sample)

The following constituents were detected below the sub-slab vapor VISLs:

- Toluene (2-SS and 6-SS)
- trans-1,2-DCE (3-SS)
- PCE (4-SS)
- 1,2,4-TMB (5-SS)

<u>March 2016 Event</u>

The following constituent was detected above the sub-slab vapor VISL:

- Chloroform (6-SS)

No other constituents were detected in sub-slab vapor samples collected in March 2016.

4.6 Groundwater Assessment

At the request of the USEPA, 10 Vertical Aquifer Profiling (VAP) boring locations (VAP-1 through VAP-10) were selected in the residential neighborhood to delineate potential constituent concentrations and to further evaluate the stratification of constituent concentrations in the groundwater of the Upper Aquifer. Only the samples from the first encountered groundwater at each location were evaluated in the VI assessment because only groundwater at the interface with the overlying unsaturated soils is relevant when evaluating VI potential. These locations were included in the September 11, 2015, IMWP and approved by the USEPA (Figure 2). The Sample/Core Logs for these VAP borings are included in Appendix G.

4.6.1 Sampling

A track-mounted Geoprobe® rig was used to advance the 10 VAP borings (VAP-1 through VAP-10) to a depth of approximately 50 ft bgs. This depth is the approximate base of the Upper Aquifer. The samples were collected using a Geoprobe® SP-16 water sampler tool. Beginning at the first encountered groundwater, Arcadis collected a grab groundwater sample at the first encountered water-bearing zone and then at 5-foot intervals to a total depth of approximately 50 ft bgs. After the samples were collected, the Geoprobe® boreholes were properly abandoned.

The VAP grab groundwater samples were collected in a manner that minimized interference and/or cross impacts from the various vertical water-bearing zones within the Upper Aquifer. Duplicate, trip blank, and matrix spike/matrix spike duplicate samples were collected during the sampling event for QA/QC purposes.

4.6.2 Results

While groundwater samples were collected from the first encountered water-bearing zone to approximately 50 ft bgs, only the shallowest interval is relevant to the VI assessment and evaluated in this report. The deeper groundwater sample results are not germane to the VI assessment, but are summarized in the data tables provided.

Groundwater VOC data from the first encountered groundwater interval from each VAP location are summarized in Table 4. The residential groundwater VISLs are also provided in Table 4. All groundwater VOC data are summarized in Table 5. Table 6 summarizes all groundwater SVOC data, and Table 7 summarizes all groundwater metals data. QA/QC data are summarized in Table 8. Copies of the laboratory reports are provided in Appendix E.

Analytical results from the VAP groundwater samples collected in October 2015 document that TCE was the only VOC detected above the residential groundwater-to-vapor VISL (Table 4). TCE was detected above the VISL of 1.5 μg/L in five of the ten locations:

- VAP-2 (15 to 16 ft bgs)
- VAP-5 (15 to 16 ft bgs)
- VAP-6 (12 to 13 ft bgs)
- VAP-7 (13 to 14 ft bgs)
- VAP-8 (18 to 19 ft bgs)

TCE and cis-1,2-DCE shallow groundwater concentrations are shown on Figure 4.

The following constituents were either detected in shallow groundwater samples below their respective residential groundwater-to-vapor VISLs or do not have an established groundwater-to-vapor VISL.

- 2-Butanone (VAP-1-GW [12-15] and VAP-9-GW [15-16])
- Carbon disulfide (VAP-3-GW [15-16])
- cis-1,2-DCE (VAP-2-GW [15-16], VAP-4-GW [15-16], VAP-5-GW [15-16], VAP-6-GW [12-13], VAP-7-GW [13-14], VAP-8-GW [18-19])
- Toluene (VAP-10-GW [16-17])
- TCE (VAP-4-GW [15-16])

4.7 Soil Assessment

At the request of the USEPA, soil samples were collected during the groundwater assessment activities. As specified in USEPA's correspondence of September 4, 2015, a lithologic description was prepared for all borings and an organic vapor analyzer (OVA) was used to field screen soil from the boreholes. A single soil sample was collected from each borehole, corresponding to the interval with the highest measured OVA readings. If no OVA readings were detected in a given soil boring within the vadose zone, a soil sample was collected from the upper five feet of the boring.

4.7.1 Sampling

The soil sampling activities were conducted with the track-mounted Geoprobe® unit utilized during the VAP sampling. The soil borings were installed adjacent to the VAP locations. A soil coring device with a new acetate sleeve was driven into the ground by the Geoprobe® unit and retrieved to the surface. Upon retrieval of the soil core and removal from the acetate sleeve, a qualified geologist conducted a visual inspection of the core. The following information was recorded on Sample/Core Logs, which were prepared for each location and are provided in Appendix G.

- Major soil type and percentage;
- Composition of the soil;
- Moisture, texture, and color of the soil;
- Other geologic observations such as bedding characteristics, structure and orientation, and primary and secondary permeability/porosity (if possible); and
- Observations on drilling progress including sample interval loss and recovery.

The soil intervals from the borings were screened in the field using an OVA (e.g., photoionization detector) to document the levels of organic vapors present. To collect volatile organic headspace readings, a portion of the soil core was placed in a sealed plastic bag. The bag was placed in a dry area and allowed to warm to an ambient temperature. After a minimum of 10 minutes, the OVA was inserted into the bag to measure the vapors that had accumulated. OVA readings were recorded on the Sample/Core Log (Appendix G). The soil interval in the zone above the water table (vadose zone) exhibiting the highest OVA reading in each borehole was selected for sampling.

Duplicate, trip blank, and matrix spike/matrix spike duplicate samples were collected during the sampling event for QA/QC purposes.

Geotechnical samples also were collected from three of the VAP locations (VAP-6, VAP-8, and VAP-9). Sampling was completed by installing a separate adjacent boring for each of the three locations. A soil coring device with a new acetate sleeve was driven into the ground by the Geoprobe® unit and retrieved to the surface. Upon retrieval of the soil core, the 6- to 8-foot interval was cut and capped with the acetate sleeve intact. The soil core was submitted to Core Labs in Wisconsin for geotechnical analysis for the following parameters:

- Moisture content
- Total porosity
- Air-filled porosity
- Water-filled porosity

4.7.2 Results

Soil samples were analyzed for VOCs, SVOCs, and metals. Only constituents relevant to VI potential are evaluated in this report. Soil analytical results for VOCs, SVOCs, and metals are presented in Tables 9 through 11. Copies of laboratory data reports are provided in Appendix E.

Analytical results from the soil samples collected in October 2015 document that the agreed list of expanded constituents were not detected, with the exception of benzene and toluene in VAP-2 in the 2-to 4-foot interval at estimated concentrations of 0.57 J micrograms per kilogram (µg/kg) and 0.49 J µg/kg, respectively.

The geotechnical laboratory tests from VAP-6 (6 to 8 ft bgs), VAP-8 (6 to 8 ft bgs), and VAP-9 (6 to 8 ft bgs) show high moisture content and zero-to-low air-filled porosity, which severely restricts vertical vapor migration within the silty-clay soil between the aquifer and ground surface. Moisture content within this soil unit ranged from 20.9 to 25.4 percent, and air-filled porosity ranged from 0.0 to 1.9 percent. Total porosity ranged from 36.0 to 41.6 percent, with water-filled porosity ranging from 36.0 to 39.7 percent.

In July 2015, T&M Associates also collected geotechnical samples from three intervals adjacent to Boring ST219 (ST-219A, ST-219B, and ST-219C) within the interval of 6 to 8 feet bgs. These geotechnical laboratory tests determined permeabilities of 3.46 x 10-9 centimeters per second (cm/sec), 1.32 x 10-7 cm/sec, and 3.12 x 10-9 cm/sec, respectively, within this interval. Total porosity ranged from 38 to 40 percent, with 95 to 100 percent saturation of the pore space. These geotechnical samples further demonstrate the low potential for vertical vapor migration, based on the low hydraulic conductivity and the near complete saturation of the soil. When, as here the pore space in the soil is filled with water (saturated conditions), air flow is not likely to occur and vapor migration from groundwater or soil gas beneath the soil layer to the ground surface or to structures is not likely to occur. Results from the geotechnical soil samples are shown in Table 12.

4.8 Data Validation

A comprehensive data validation was conducted on all VI samples by the laboratory. Overall, the laboratory system performance was determined to be acceptable. Appropriate qualifiers were applied based on the validation. All data were deemed useable; no data were rejected. Data validation reports for the VI samples are provided in Appendix H.

Soil and groundwater data verification was conducted in accordance with the procedures described in the Quality Assurance Project Plan for the facility monitoring program. No qualifiers were applied to these data.

4.9 Data Evaluation

As specified in the approved IMWP and the USEPA OSWER Technical Guide, multiple lines of evidence were evaluated to determine if the vapor intrusion pathway was complete. The multiple lines of evidence that were used in the evaluation included groundwater, soil gas, sub-slab, indoor air, and ambient air data, area geology and geotechnical properties, data trends (from the two seasonal air sampling events), and the construction of the six homes in the VI Focus Area.

4.9.1 September 2015 Event

During the September 2015 sampling event, benzene, chloroform, 1,2-DCA, and TCE concentrations were detected in indoor air above their VISLs in one or more of the six homes. Other constituents, primarily ethylbenzene, toluene, and xylenes, also were detected but at concentrations below the indoor air VISLs. These latter compounds typically were not found in the soil gas, sub-slab, or shallow groundwater samples in the VI Focus Area. Soil gas sampling locations SG-3, SG-4, SG-5, and SG-6 and groundwater sampling locations VAP-6, VAP-7, and VAP-8 are within the VI Focus Area.

TCE was detected in shallow groundwater from the VAP-6, VAP-7, and VAP-8 locations, with the highest concentration detected at VAP-6. A review of the soil gas (SG-3) and sub-slab (6-SS) sampling data from this area clearly reveals that neither volatilization from the groundwater plume nor migration upward in the soil column is occurring, as there are no detections of TCE in these samples.

Review of the constituents found in the indoor air reveals that these compounds typically also were found in the ambient air samples. This pattern indicates that concentrations found in the indoor air samples are the result of the typical exchange of ambient air with indoor air. Data indicate that background sources within the houses also may be contributing to the constituents found in indoor air. In Section 6.3.5 of the USEPA OSWER Technical Guide (Identification and Evaluation of Contributions from Indoor and Ambient Air Sources), the following statements are made concerning this evaluation:

> Results indicating indoor vapor sources as primarily responsible for indoor air concentrations. If a vapor-forming chemical is present with an elevated concentration in indoor air, but not present or is negligibly present in sub-slab soil gas samples (or representative samples of the subsurface vapor source), then the presence of this contaminant in indoor air may not arise from the vapor intrusion pathway, but rather from indoor sources or other background sources (e.g., ambient air).
>
> Results indicating outdoor vapor sources as primarily responsible for indoor air concentrations. If a vapor-forming chemical(s) is(are) detected in outdoor air and indoor air at similar concentrations, but is(are) not present in the sub-slab soil gas samples (or representative samples of the subsurface vapor source), then the presence of this contaminant(s) in indoor air may not arise from the vapor intrusion pathway, but rather from outdoor sources (i.e., ambient air).

A review of the background air concentrations presented in the Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion (USEPA 2011) (Compilation) reveals that concentrations of many of the compounds detected are within the typical background ranges identified in the study. Although the background values presented were not specifically from a study conducted in Mississippi, the values are a compilation of data from 15 studies selected by both USEPA and external reviewers that reported summary statistics for distribution of indoor air concentrations measured in residences that are not expected or known to be located over contaminated soil or groundwater. These studies sampled indoor air in residences across the United States between 1990 and 2005 and are expected to represent typical background concentrations encountered in most homes. For common chemicals, between 475 and 2,615 data points were included in the analysis of background concentrations. The table below summarizes the background statistics from the Compilation for those constituents detected in the indoor air samples from the VI Focus Area.

Compound	Max of 50th Percentile (µg/m^3)	Max of 90th Percentile (µg/m^3)	Percent Detection
Benzene	4.7	15	91.1
Chloroform	2.4	6.2	68.5
1,2-DCA	(<RL of 0.08 – 2.0)	0.4	13.8
cis-1,2-DCE	(<RL of 0.25 – 2.0)	(<RL of 0.25 – 2.0)	4.9
Ethylbenzene	3.7	13	85.7
Toluene	24	77	96.4
TCE	1.1	2.1	42.6
m,p-Xylenes	14	56	92.9
o-Xylenes	3.6	16	85.7

The VOCs detected in the indoor air in the VI Focus Area are constituents commonly found in background sources such as consumer products (cleaners, solvents, plastic products, nail polish, gasoline), building materials (carpet, insulation, paint, wood-finishing products), combustion processes (smoking, cooking, home heating), occupant activities (craft hobbies), and chlorinated water (USEPA 2011). The Agency for Toxic Substances and Disease Registry also lists typical background sources for these VOCs. Benzene is found in gasoline and other common household sources such as cigarette smoke. 1,2-DCA is found in products such as cleaning products, pesticides, and adhesives used to glue wallpaper and carpets. Chloroform is a trihalomethane found in chlorinated drinking water, and also is formed through the use of household bleach. TCE is found in adhesives, paint removers, spot removers, and gun cleaners.

Several factors indicate that the constituents detected in indoor air during the September 2015 sampling event are not a result of vapor intrusion, including the following:

- Inspection of the geologic logs from the borings in the VI Focus Area reveals a silt and clay layer at the surface that is 9 to 10 feet thick. Geotechnical analysis demonstrates that this interval has low permeability and air-filled porosity. The soil porosity is nearly or completely water-filled, which will prevent the upward migration of vapors.
- Sub-slab soil gas samples do not contain the constituents of interest present in groundwater in the VI Focus Area, namely TCE and cis-1,2-DCE,
- The constituents identified in indoor air in the VI Focus Area are common constituents found in indoor air in houses that are not in areas of groundwater or soil impact as indicated in the Compilation.

Thus, based on the September 2015 sampling results, the vapor intrusion pathway is not complete in the VI Focus Area.

4.9.2 March 2016 Event

During the March 2016 sampling event, benzene, chloroform, and 1,2-DCA concentrations were detected in indoor air above their VISLs in one or more of the six homes. Other constituents, primarily ethylbenzene, toluene, and xylenes, also were detected but at concentrations below the indoor air VISLs. These compounds typically were not found in the sub-slab or shallow groundwater samples in the VI Focus Area. Only benzene and toluene were detected in ambient air samples during the March 2016 event. There were no detections of TCE in the indoor air samples or the ambient air samples collected during this event. The detected compounds in indoor air during the March 2016 event appear to be indicative of an indoor background source.

Based on the foregoing sampling results and those discussed for the September 2015 event, the vapor intrusion pathway is not complete in the VI Focus Area.

A detailed evaluation of the data for each house is provided below.

4.9.3 Detailed Evaluation

<u>House #1</u>

The sample results pertaining to House #1 in September 2015 indicated TCE concentrations above the residential indoor air and sub-slab vapor (duplicate sample only) VISLs. The TCE indoor air sample 1-IA (1.1 µg/m^3) was similar to the ambient air results. TCE was not detected in the sub-slab sample. However, a duplicate sub-slab sample was collected at the same time as the parent sub-slab sample. The duplicate sample at 1-SS was above the sub-slab vapor VISL at 22 µg/m^3. Benzene, chloroform, and 1,2-DCA were detected in the indoor air sample above the residential indoor air VISLs at 3.8 µg/m^3, 0.75 µg/m^3, and 0.84 µg/m^3, respectively. Benzene, chloroform, and 1,2-DCA were not detected in the sub-slab vapor sample or shallow groundwater samples. Therefore, the detections in the indoor air appear to be associated with the ambient air exchange concentrations and/or background sources within the house. During the March 2016 event, House #1 had similar concentrations of benzene, chloroform, and 1,2-DCA detected in the indoor air sample above the residential indoor air VISL at 1.6 µg/m^3, 0.9 µg/m^3, and 0.58 µg/m^3, respectively. Benzene, chloroform, and 1,2-DCA were not detected in the sub-slab vapor sample or shallow groundwater samples. TCE was not detected in either the indoor air or sub-slab sample during the March 2016 event. The results from the fall and spring sampling events indicate that VI from a subsurface source is not occurring at House #1.

<u>House #2</u>

The sample results pertaining to House #2 in September 2015 indicated TCE concentrations above the residential indoor air VISL in 2-IA (1.1 µg/m^3) and similar to the ambient air TCE concentrations. TCE was not detected in the sub-slab sample. Benzene, chloroform, and 1,2-DCA were detected in the indoor air sample above the residential indoor air VISL at 0.81 µg/m^3, 0.91 µg/m^3, and 7.0 µg/m^3, respectively. Benzene, chloroform, and 1,2-DCA were not detected in the sub-slab vapor sample or shallow groundwater samples. Therefore, the detections in the indoor air appear to be associated with the ambient air exchange and/or background sources within the house. During the March 2016 event, House #2 had only a detection of 1,2-DCA in the indoor air sample above the residential indoor air VISL at 8.8 µg/m^3. 1,2-DCA was not detected in the sub-slab vapor sample or shallow groundwater samples. TCE was not in either the indoor air or sub-slab sample during the March 2016 event. The results from the fall and spring sampling events indicate that VI from a subsurface source is not occurring at House #2.

House #3

The sample results pertaining to House #3 in September 2015 indicated only chloroform was detected above the residential indoor air VISL in 3-IA (4.2 µg/m^3). Chloroform was not detected in the sub-slab sample or groundwater samples. Therefore, the detections in the indoor air appear to be associated with background sources within the house. During the March 2016 event, House #3 had concentrations of benzene and 1,2-DCA detected in the indoor air sample above the residential indoor air VISL at 1.1 µg/m^3 and 0.36 µg/m^3, respectively. Benzene and 1,2-DCA were not detected in the sub-slab vapor sample or shallow groundwater samples. TCE was not detected in indoor air or sub-slab samples for either sampling event. The results of the fall and spring sampling events indicate that VI from a subsurface source is not occurring at House #3.

House #4

The sample results pertaining to House #4 in September 2015 indicated TCE concentrations above the residential indoor air VISL in 4-IA (0.99 µg/m^3) and similar to the ambient air TCE concentrations. TCE was not detected in the sub-slab sample. Benzene, chloroform, and 1,2-DCA were detected in the indoor air sample above the residential indoor air VISL at 1.8 µg/m^3, 0.94 µg/m^3, and 1.2 µg/m^3, respectively. Benzene, chloroform, and 1,2-DCA were not detected in the sub-slab vapor sample or in groundwater samples. Therefore, the detections in the indoor air appear to be associated with the ambient air exchange and/or background sources within the house. During the March 2016 event, House #4 had concentrations of benzene and chloroform detected in the indoor air sample above the residential indoor air VISL at 0.48 µg/m^3 and 4.9 µg/m^3, respectively. Benzene and chloroform were not detected in the sub-slab vapor sample or shallow groundwater samples. Therefore, the detections in the indoor air appear to be associated with the ambient air exchange and/or background sources within the house. TCE was not detected in either the indoor air or sub-slab sample during the March 2016 event. The results of the fall and spring sampling events indicate that VI from a subsurface source is not occurring at House #4.

House #5

The sample results pertaining to House #5 in September 2015 indicated TCE concentrations above the residential indoor air VISL in 5-IA (0.86 µg/m^3) and similar to the ambient air TCE concentrations. TCE was not detected in the sub-slab sample. Benzene, chloroform, and 1,2-DCA were detected in the indoor air sample above the residential indoor air VISL at 0.86 µg/m^3, 0.21 µg/m^3, and 0.18 µg/m^3, respectively. Benzene, chloroform, and 1,2-DCA were not detected in the sub-slab vapor sample or in groundwater samples. Therefore, the detections in the indoor air appear to be associated with the ambient air exchange and/or background sources within the house. During the March 2016 event, House #5 did not have constituents detected in the indoor air sample or sub-slab vapor sample above laboratory detection limits. Duplicate samples were collected of the indoor air and sub-slab vapor at this location and were also below laboratory detection limits. The results of the fall and spring sampling events indicate that VI from a subsurface source is not occurring at House #5.

House #6

The sample results pertaining to House #6 in September 2015 indicated TCE concentrations above the residential indoor air VISL in 6-IA (0.65 µg/m^3) and similar to the ambient air TCE concentrations. TCE was not detected in the sub-slab sample. Chloroform was detected in the indoor air sample above the residential indoor air VISL (0.56 µg/m^3). Chloroform was detected in the sub-slab vapor sample above the sub-slab VISL at 140 µg/m^3; however, chloroform was not detected in the groundwater samples. The detection of TCE in indoor air at a concentration similar to ambient air appears to be associated with ambient air exchange. The chloroform detection may be associated with a sub-slab source or a background source within the house, but it is not associated with groundwater. During the March 2016 event, House #6 only had a detection of benzene in the indoor air sample above the residential indoor air VISL at 0.57 µg/m^3. Benzene was not detected in the sub-slab vapor sample. The benzene detection in indoor air appears to be associated with ambient air exchange and/or a background source within the house. TCE was not detected above the laboratory reporting limits in either the indoor air or sub-slab sample during the later event. The results of the fall and spring sampling events indicate that VI from a subsurface source is not occurring at House #5.

4.10 Potential Migration Pathways

The main potential migration pathway for VI into structures is VOCs in groundwater volatilizing and migrating upward through permeable soils within the vadose zone through preferential pathways and eventually into buildings. However, other potential VI migration pathways are possible, such as vapors from shallow soil source soils and/or utility corridors volatizing directly into buildings. These various potential pathways for sub-surface vapor migration are further detailed in the following subsections.

4.10.1 Shallow Soil

Vapors can migrate into unsaturated soils directly from a soil source. Surface water infiltration can flush through a soil source, transporting water and contaminants from the surface to deeper soils. Vapors can migrate horizontally as well as vertically during rain events or high atmospheric pressure.

Benzene and toluene at VAP-2 were the only VOCs detected in any of the shallow soil samples. However, benzene, ethylbenzene, toluene, xylenes, and 1,2,4-TMB were detected in soil gas, but not in shallow groundwater. This indicates a potential shallow soil localized petroleum source or sources or the utility corridor within the VI Focus Area, and not VI migrating from the groundwater.

4.10.2 Utility Corridors

Utility corridors can provide pathways for vapor or water transport. Impacted material from utilities can enter high-conductivity backfill through cracks in utility pipes or joints. Soil gas can sometimes migrate farther in high-conductivity backfill of utility trenches than in native soil and can travel in the direction of the utility trench. Impacted water in high-conductivity backfill also can migrate in opposite directions from natural groundwater flow due to elevation changes at the base of the utility trench.

Several subsurface utilities have been identified in the VI Focus Area. Water lines and sanitary sewer lines are present northeast-southwest along Lyon Drive. A sanitary sewer line also is present northwest-southeast between House #5 and House #6 and is connected to a lift station located in the southwest corner of the House #6 property. A second lift station is located in the southwest corner of the House #1 property and is connected to the lift station behind House #5 by a sanitary sewer line present northeast-southwest along the gravel road to the south of Lyon Drive. Natural gas lines have been identified as present northeast-southwest along Lyon Drive.

The chloroform detected in the sub-slab sample at House #6 (6-SS) and in soil gas samples collected at SG-3, SG-4, SG-5, and SG-7 appears to be associated with utilities because chloroform was not detected in the shallow groundwater. Chlorinated water is supplied to the homes in the vicinity of the VI Focus Area. Chloroform can be a by-product of chlorinated water. A water relief valve located approximately 90 feet northwest of SG-6 was observed to be draining onto the ground.

4.10.3 Shallow Groundwater

The main potential migration for VI into structures is VOCs in groundwater volatilizing and migrating upward through permeable soils within the vadose zone through preferential pathways and eventually into buildings. However, this transport pathway was not observed in the VI Focus Area. The presence of the low-permeability and saturated soils identified in the surficial clay layer impedes vertical migration of vapors though the soil column. Therefore, any VI from the shallow groundwater likely would be limited to geologic preferential pathways and/or utility corridors. This evaluation identified no evidence of VI from groundwater via a direct pathway through the surficial soil or the utility corridors.

5 SUMMARY

At the request of the USEPA, a VI assessment was conducted in September/October 2015 to include indoor air, sub-slab vapor, soil gas, groundwater, and soil sampling in the VI Focus Area and vicinity. Additionally, a second sampling event was performed in March 2016 (the opposite season of the initial sampling event) that included resampling four of the eight soil gas ports (SG-3, SG-6, SG-7 and SG-8) and resampling the six residential structures in the VI Focus Area. The VI Focus Area is shown on Figure 2. The VI assessment and scope of work were detailed in the revised IMWP dated September 10, 2015, and conditionally approved by the USEPA Region 4 in their September 4, 2015 letter. The agreed list of compounds to be analyzed was detailed in the revised IMWP and also approved by the USEPA. The scope of work included the following:

- Installation and two rounds of sampling of eight soil gas ports (SG-1 through SG-8) in the vicinity of the VI Focus Area.
- Collection and analysis of two rounds of ambient air, indoor air, and sub-slab vapor samples from the six homes in the VI Focus Area.
- Installation of ten VAP borings located in the vicinity of the VI Focus Area, and collection and analysis of soil and groundwater samples. These samples were analyzed for a wider range of constituents beyond the agreed list for VI to include VOCs, SVOCs, and metals.

The laboratory results of the samples collected were evaluated against the USEPA residential VISLs to determine potential impacts to residential homes in the VI Focus Area. Additionally, data collected during the assessment activities were used in the "multiple lines of evidence" approach discussed in the OSWER Technical Guide. The results of the evaluation are as follows:

- Benzene and chloroform were detected above the VISLs for the soil gas port samples. Both of the compounds appear to be a result of either a localized petroleum source or utility corridors in the VI Focus Area, and are not related to VI from a groundwater source. Groundwater samples in and around the VI Focus Area do not contain chloroform or benzene.
- During the September 2015 sampling event, some compounds were detected in the background ambient air samples, with TCE detected above the VISL. During the March 2016 seasonal sampling event, neither TCE nor any other organic compounds were detected in the ambient air samples.
- During the September 2015 sampling event, no organic compounds were detected above the VISLs in the sub-slab vapor samples, with the exception of chloroform in 6-SS and TCE in the duplicate sample for 1-SS. Chloroform in 6-SS appears to be a result of utility corridors in the VI Focus Area, and is not related to VI from a groundwater source. The detection of TCE in the duplicate sample is suspect, given no detection of this compound in the primary sample. During the March 2016 seasonal sampling event, TCE was not detected above the VISL in any of the sub-slab vapor samples.
- During the September 2015 sampling event, benzene, chloroform, 1,2-DCA, and TCE were detected above the VISLs for the indoor air samples. Benzene, chloroform, and 1,2-DCA appear to be a result of either a localized petroleum source or the utility corridors in the VI Focus Area, and are not related to VI from a groundwater source. TCE does not appear to be migrating from the groundwater, but, rather, to be a result of ambient air exchange. During the March 2016 seasonal sampling event, benzene, chloroform, and 1,2-DCA were detected above the VISLs for the indoor air samples; TCE was not detected above the VISL in the indoor air samples.

Based on the VI assessment conducted in the VI Focus Area and its vicinity, the following key findings have been identified:

- Indoor air detections of TCE and some other VOCs during the September 2015 sampling event were similar to ambient air concentrations, indicating the typical exchange of indoor air with ambient air.
- Other VOCs detected in the indoor air samples appear to be from background sources because most of these VOCs were not detected in either shallow groundwater or sub-slab vapor samples.
- Utility corridors (from leakage or transport within the corridor) and shallow soils are potential sources of the other VOCs that are not related to VI from a groundwater source.
- TCE concentrations observed in shallow groundwater above the groundwater-to-vapor VISL were limited and sporadic in this assessment and in past investigations.
- The surficial soil is primarily silt and clay with a high moisture content and low air-filled porosity. The geotechnical properties demonstrate that the surficial soils have a low potential for vapor migration.
- The VI pathway is incomplete.

6 REFERENCES

T&M Associates. 2014a. Annual Monitoring Report.

T&M Associates. 2014b. Data Transmittal Letter – MW-20 Area – Grenada.

T&M Associates. 2016. Moose Lodge Road Area Additional Investigation Report Comprehensive Study Area Groundwater Evaluation. February.

USEPA. 2011. Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion. June.

USEPA. 2015. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. June.

TABLES

Table 1
Summary of Vapor Intrusion Screening Levels for Indoor Air, Sub-Slab Vapor, Exterior Soil Gas, and Groundwater
Grenada Manufacturing, LLC
Grenada, Mississippi

Constituent	Indoor Air/ Ambient Air ($\mu g/m^3$)†	Sub-Slab Vapor/ Exterior Soil Gas ($\mu g/m^3$)†	Groundwater (µg/L)*
Benzene	0.36	12	2
Chloroform	0.12	4.1	1
Dichloroethane, 1,2-	0.11	3.6	2.9
Dichloroethene, 1,1-	210	7000	230
Dichloroethene, cis-1,2-	NL	NL	NL
Dichloroethene, trans-1,2-	NL	NL	NL
Ethylbenzene	1.1	37	4.7
Methylene chloride	100	3400	930
Tetrachloroethene	11	360	20
Toluene	5200	170000	2500
Trichlorothane, 1,1,2-	0.18	58	6.8
Trichloroethene	0.48	16	1.5
Trimethylbenzene, 1,2,4-	7.3	240	40
Vinyl chloride	0.17	5.6	0.17
m-Xylenes	100	3500	480
o-Xylenes	100	3500	660
p-Xylenes	100	3500	500
Xylenes	100	3500	660

Notes:

* USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for indoor air, ambient air, sub-slab vapor, and exterior soil gas concentrations based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening levels assume 26-year exposure duration, 350 days per year, 24 hours per day.

† USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for groundwater concentration based an average groundwater temperature of 20 degrees celsius and on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening levels assume 26-year exposure duration, 350 days per year, 24 hours per day.

Acronyms:

µg/L	Micrograms per liter.
$\mu g/m^3$	Micrograms per cubic meter.
NL	No screening criteria calculated.
RSL	Regional Screening Level.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.

Table 2
Summary of Exterior Soil Gas Analytical Results
Grenada Manufacturing, LLC
Grenada, Mississippi

Sample Details			Constituent (µg/m³)															
Sample ID	Sample Date	Screened Interval (ft bgs)	Benzene	Chloroform	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Methylene Chloride	PCE	Toluene	1,1,2-TCA	TCE	1,2,4-TMB	Vinyl Chloride	m,p-Xylenes	o-Xylenes
Exterior Soil Gas Screening Level*			**12**	**4.1**	**3.6**	**7,000**	**NL**	**NL**	**37**	**3,400**	**360**	**170,000**	**58**	**16**	**240**	**5.6**	**3,500**	**3,500**
SG-1	9/16/2015	5.5 - 6.0	< 4.0	< 6.0	< 5.0	< 4.9	< 4.9	< 4.9	7.6	< 43	< 8.4	< 4.7	< 6.8	< 6.7	< 6.1 UJ	< 3.2	15	< 5.4
SG-1	3/2/2016	5.5 - 6.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SG-2	9/16/2015	5.5 - 6.0	5.6	< 5.6	< 4.6	< 4.5	< 4.5	< 4.5	< 4.9	< 40	< 7.7	< 4.3	< 6.2	< 6.1	< 5.6 UJ	< 2.9	< 5.0	< 5.0
SG-2	3/2/2016	5.5 - 6.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SG-3	9/16/2015	5.5 - 6.0	9.4	**9.1**	< 4.7	< 4.6	< 4.6	< 4.6	< 5.1	< 41	< 7.9	< 4.4	< 6.4	< 6.3	< 5.8 UJ	< 3.0	< 5.1	< 5.1
SG-3	3/2/2016	5.5 - 6.0	<3.8	<5.7	<4.8	<4.6	<4.6	<4.6	<5.1	<41	<8	<4.4	<6.4	<6.3	<5.8	<3	<5.1	<5.1
SG-4	10/7/2015**	5.5 - 6.0	< 4.2	< 6.4	< 5.3	< 5.2	< 5.2	< 5.2	< 5.7	< 46	< 9.0	< 5.0	< 7.2	< 7.1	< 6.5	< 3.4	< 5.7	< 5.7
SG-4	3/2/2016	5.5 - 6.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SG-5	9/16/2015	5.0 - 5.5	8.3 J [6.8 J]	**88 J [88 J]**	< 5.2 UJ [< 5.0 UJ	< 5.1 UJ [< 4.9 UJ	< 5.1 UJ [< 4.9 UJ	< 5.1 UJ [< 4.9 UJ]	13 J [13 J]	< 45 UJ [< 43 UJ]	< 8.8 UJ [< 8.4 UJ	30 J [30 J]	< 7.1 UJ [<6.8 UJ]	< 7.0 UJ [< 6.7 UJ	21 J [20 J]	< 3.3 UJ [< 3.2 UJ	65 J [68 J]	24 J [25 J]
SG-5	3/2/2016	5.0 - 5.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SG-6	9/16/2015	5.5 - 6.0	**23 J**	**97 J**	< 5.3 UJ	< 5.2 UJ	< 5.2 UJ	< 5.2 UJ	8.5 J	< 46 UJ	< 8.9 UJ	21 J	< 7.2 UJ	< 7.1 UJ	15 J	< 3.4 UJ	48 J	16 J
SG-6	3/2/2016	5.5 - 6.0	<5 [<5.8]	<7.7 [<8.8]	<6.4 [<7.3]	<6.2 [<7.2]	<6.2 [<7.2]	<6.2 [<7.2]	<6.8 [<7.8]	<54 [<63]	<11 [<12]	5.9 [<6.8]	<8.6 [<9.8]	<8.4 [<9.7]	<7.7 [<8.9]	<4 [<4.6]	<6.8 [<7.8]	<6.8 [<7.8]
SG-7	10/7/2015**	2.75 - 3.25	< 4.3	**17**	< 7.3	< 5.3	< 5.3	< 5.3	< 5.8	< 47	< 9.1	< 5.1	< 7.3	< 7.2	14	< 3.4	13	8.1
SG-7	3/2/2016	2.75 - 3.25	<3.7	<5.6	<4.6	<4.6	<4.6	<4.6	<5.0	<40	<7.8	<4.3	<6.3	<6.2	<5.6	<2.9	6.5	<5.0
SG-8	10/7/2015**	3.0 - 3.5	< 4.2	< 6.4	< 5.3	< 5.2	< 5.2	< 5.2	< 5.7	< 46	< 9.0	< 5.0	< 7.2	8.7	< 6.5	< 3.4	< 5.7	< 5.7
SG-8	3/2/2016	3.0 - 3.5	<7.3	<11	<9.2	<9.1	<9	<9	<9.9	<79	<15	<8.6	<12	14	<11	<5.8	<9.9	<9.9

Notes:

*	USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for exterior soil gas concentrations based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0. Screening levels assume 26-year exposure duration, 350 days per year, 24 hours per day.
**	Due to a laboratory error, the soil gas samples collected on 9/16/2015 were not analyzed. The soil gas port location was re-sampled on 10/7/2015.
[ ]	Duplicate sample.
BOLD and SHADED	Bold and shaded values exceed the applicable screening level based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.

Acronyms:

bgs	Below ground surface.
DCA	Dichloroethane.
DCE	Dichloroethene.
ft	Feet.
HQ	Hazard quotient.
J	The compound was positively identified; however, the associated numerical value is an estimated concentration only.
µg/m³	Micrograms per cubic meter.
NL	Screening level not calculated due to no toxicity data.
NS	Not sampled.
PCE	Tetrachloroethene.
RSL	Regional Screening Level.
TCA	Trichloroethane.
TCE	Trichloroethene.
TMB	Trimethylbenzene.
UJ	The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.

Table 3
Summary of Residential Air Sampling (Indoor, Sub-Slab, and Ambient Air) Analytical Results
Grenada Manufacturing, LLC
Grenada, Mississippi

Sample Details			Constituent (µg/m³)															
Sample ID	Sample Type	Sample Date	Benzene	Chloroform	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Methylene Chloride	PCE	Toluene	1,1,2-TCA	TCE	1,2,4-TMB	Vinyl Chloride	m,p-Xylenes	o-Xylenes
Indoor Air/Ambient Air Screening Level*			0.36	0.12	0.11	210	NL	NL	1.1	100	11	5200	0.18	0.48	7.3	0.17	100	100
Sub-Slab Vapor Screening Level*			12	4.1	3.6	7000	NL	NL	37	3400	360	170000	58	16	240	5.6	3500	3500
1-IA	Indoor Air	9/23/2015	**3.8**	**0.75**	**0.84**	< 0.18	0.61	< 1.8	1.0	< 3.2	< 0.62	5.4	< 0.50	**1.1**	< 2.2 UJ	< 0.12	2.6	0.95
1-IA	Indoor Air	3/2/2016	**1.6**	**0.9**	**0.58**	<0.14	<0.29	<1.4	0.5	<2.6	<0.5	2.8	<0.4	<0.4	<1.8	<0.094	1.2	0.39
1-SS	Sub-Slab Vapor	9/23/2015	< 3.9 [< 3.8]	< 6.0 [< 5.7]	< 4.9 [< 4.8]	< 4.8 [< 4.6]	< 4.8 [< 4.6]	< 4.8 [< 4.6]	< 5.3 [< 5.1]	< 42 [< 41]	8.5 [< 8.0]	< 4.6 [< 4.4]	< 6.6 [< 6.4]	**< 6.6 [22]**	< 6.0 [< 5.8]	< 3.1 [< 3.0]	< 5.3 [< 5.1]	< 5.3 [< 5.1]
1-SS	Sub-Slab Vapor	3/3/2016	<3.8	<5.8	<4.8	<4.7	<4.7	<4.7	<5.1	<41	<8	<4.5	<6.5	<6.4	<5.8	<3	<5.1	<5.1
2-IA	Indoor Air	9/23/2015	**0.81**	**0.91**	**7.0**	< 0.17	0.57	< 1.7	0.85	< 3.0	< 0.59	7.9	< 0.48	**1.1**	< 2.0 UJ	< 0.11	1.9	1.1
2-IA	Indoor Air	3/2/2016	<0.87	<0.53	**8.8**	<0.22	<0.43	<2.2	0.52	<3.8	<0.74	7.4	<0.59	<0.58	<2.7	<0.14	1.5	0.64
2-SS	Sub-Slab Vapor	9/23/2015	< 3.7	< 5.7	< 4.7	< 4.6	< 4.6	< 4.6	< 5.1	< 41	< 7.9	6.9	< 6.4	< 6.3	< 5.8	< 3.0	< 5.1	< 5.1
2-SS	Sub-Slab Vapor	3/3/2016	<3.8	<5.8	<4.8	<4.7	<4.7	<4.7	<5.1	<41	<8	<4.5	<6.5	<6.4	<5.8	<3	<5.1	<5.1
3-IA	Indoor Air	9/23/2015	< 2.8	**4.2**	< 1.4	< 0.69	< 1.4	< 6.9	< 1.5	< 12	< 2.4	5.6	< 1.9	< 1.9	< 8.6 UJ	< 0.45	< 3.0	< 1.5
3-IA	Indoor Air	3/2/2016	**1.1**	<0.33	**0.36**	<0.13	<0.26	<1.3	<0.29	<2.3	<0.45	11	<0.36	<0.36	<1.6	<0.085	0.61	<0.29
3-SS	Sub-Slab Vapor	9/23/2015	< 3.6	< 5.6	< 4.6	< 4.5	< 4.5	12	< 4.9	< 40	< 7.7	< 4.3	< 6.2	< 6.1	< 5.6	< 2.9	< 5.0	< 5.0
3-SS	Sub-Slab Vapor	3/3/2016	<3.7	<5.7	<4.7	<4.6	<4.6	<4.6	<5.0	<40	<7.9	<4.4	<6.4	<6.3	<5.7	<3	<5.0	<5.0
4-IA	Indoor Air	9/23/2015	**1.8**	**0.94**	**1.2**	< 0.071	0.58	< 0.71	0.43	< 1.2	< 0.24	2.7	< 0.20	**0.99**	< 0.88 UJ	0.079	1.1	0.56
4-IA	Indoor Air	3/2/2016	**0.48**	**4.9**	<0.14	<0.067	<0.13	<0.67	0.4	<1.2	<0.23	1.7	<0.18	<0.18	<0.82	<0.043	0.95	0.34
4-SS	Sub-Slab Vapor	9/23/2015	< 3.7	< 5.7	< 4.7	< 4.6	< 4.6	< 4.6	< 5.0	< 40	7.9	< 4.4	< 6.4	< 6.3	< 5.7	< 3.0	< 5.0	< 5.0
4-SS	Sub-Slab Vapor	3/3/2016	<3.8	<5.7	<4.8	<4.6	<4.6	<4.6	<5.1	<41	<8	<4.4	<6.4	<6.3	<5.8	<3	<5.1	<5.1
5-IA	Indoor Air	9/23/2015	**0.86**	**0.21**	**0.18**	< 0.076	0.65	< 0.76	0.55	2.0	< 0.26	2.6	< 0.21	**0.86**	< 0.94 UJ	0.062	1.6	0.56
5-IA	Indoor Air	3/2/2016	0.31 [0.3]	<0.16 [<0.15]	<0.13[<0.12]	<0.064[<0.06]	<0.13[<0.12]	<0.64[<0.6]	<0.14[<0.13]	<1.1[<1]	<0.22[<0.2]	0.39[0.36]	<0.18[<0.16]	<0.17[<0.16]	<0.8[<0.74]	<0.041[<0.038]	<0.28[<0.26]	<0.14[<0.13]
5-SS	Sub-Slab Vapor	9/23/2015	< 3.8	< 5.8	< 4.8	< 4.7	< 4.7	< 4.7	< 5.2	< 41	< 8.1	< 4.5	< 6.5	< 6.4	6.6	< 3.0	< 5.2	< 5.2
5-SS	Sub-Slab Vapor	3/3/2016	<3.6 [<3.7]	<5.5 [<5.7]	<4.6 [<4.7]	<4.5 [<4.6]	<4.5 [<4.6]	<4.5 [<4.6]	<4.9 [<5.1]	<39 [<41]	<7.6 [<7.9]	<4.2 [<4.4]	<6.1 [<6.4]	<6.0 [<6.3]	<5.5 [<5.8]	<2.9 [<3]	<4.9 [<5.1]	<4.9 [<5.1]
6-IA	Indoor Air	9/23/2015	< 0.70	**0.56**	< 0.35	< 0.17	0.38	< 1.7	0.63	< 3.0	< 0.59	3.9	< 0.48	**0.65**	< 2.2 UJ	< 0.11	2.1	1.0
6-IA	Indoor Air	3/2/2016	**0.57**	<0.22	<0.18	<0.091	<0.18	<0.91	<0.20	<1.6	<0.31	4	<0.25	<0.25	<1.1	<0.058	0.47	<0.20
6-SS	Sub-Slab Vapor	9/23/2015	< 3.7	**140**	< 4.7	< 4.6	< 4.6	< 4.6	< 5.1	< 41	< 7.9	4.7	< 6.4	< 6.3	< 5.8	< 3.0	< 5.1	< 5.1
6-SS	Sub-Slab Vapor	3/3/2016	<3.8	**38**	<4.9	<4.8	<4.8	<4.8	<5.1	<41	<8	<4.5	<6.5	<6.4	<5.8	<3	<5.1	<5.1
1-AA	Ambient Air	9/23/2015	0.30 J	< 0.19	< 0.15	< 0.076	0.85	< 0.76	< 0.16	< 1.3	< 0.26	0.66	< 0.21	**1.2**	< 0.94 UJ	0.10	0.52	0.29
1-AA	Ambient Air	3/2/2016	0.34	<0.16	<0.13	<0.063	<0.13	<0.63	<0.14	<1.1	<0.22	0.56	<0.17	<0.17	<0.79	<0.041	<0.28	<0.14
2-AA	Ambient Air	9/23/2015	0.32	< 0.18	< 0.15	< 0.072	0.67	< 0.72	0.24	< 1.3	< 0.25	0.89	< 0.20	**1.0**	< 0.90 UJ	0.046 J	0.83	0.36
2-AA	Ambient Air	3/2/2016	0.3	<0.15	<0.12	<0.060	<0.12	<0.60	<0.13	<1.0	<0.20	0.34	<0.16	<0.16	<0.74	<0.038	<0.26	<0.13

Notes:

*	USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for indoor air, ambient air, and sub-slab vapor concentrations based on the lower of either a target cancer risk of 1E-06 or **target hazard index of 1.0**. Screening levels assume 26-year exposure duration, 350 days per year, 24 hours per day.
[ ]	Duplicate sample.
BOLD and SHADED	Bold and shaded values exceed the applicable screening level based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.

Acronyms:

DCA	Dichloroethane.
DCE	Dichloroethene.
J	The compound was positively identified; however, the associated numerical value is an estimated concentration only.
µg/m³	Micrograms per cubic meter.
NL	Screening level not calculated due to no toxicity data.
PCE	Tetrachloroethene.
RSL	Regional Screening Level.
TCA	Trichloroethane.
TCE	Trichloroethene.
TMB	Trimethylbenzene.
UJ	The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.

Table 4
Summary of Shallow Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,4-Trichlorobenzene	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3-Dichlorobenzene
USEPA Residential Groundwater VISLs (µg/L)†			**9,300**	**4.4**	**1,800**	**6.8**	**9.4**	**230**	**52**	**0.04**	**3,700**	**2.9**	**3.1**	**NL**
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 16 U	< 8 U	< 8 U	< 8 U	< 8 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 10 U	< 10 U	< 10 U	< 10 U
VAP-7-GW	13-14	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U
VAP-9-GW	15-16	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-10-GW	16-17	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
†	USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for groundwater concentration based an average groundwater temperature of 20 degrees Celsius and on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening levels assumes 26-year exposure duration, 350 days per year, 24 hours per day.
BOLD and SHADED	Bold values in the shallowest groundwater interval exceed the calculated target residential VISLs for groundwater to vapor based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.

Acronyms:

B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
µg/L	Micrograms per liter.
NL	No screening criteria calculated.
RSL	Regional Screening Level.
U	Indicates the analyte was analyzed for but not detected.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.
VOC	Volatile organic compound.

Table 4
Summary of Shallow Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	1,4-Dichlorobenzene	2-Butanone (MEK)	2-Hexanone	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Bromoform	Bromomethane	Carbon Disulfide	Carbon Tetrachloride	Chlorobenzene	Chlorodi-bromomethane
USEPA Residential Groundwater VISLs (µg/L)†			**3.6**	**2,800,000**	**11,000**	**730,000**	**1,100,000**	**2**	**160**	**20**	**1,500**	**0.52**	**540**	**NL**
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	0.72 J	< 10 U	< 10 U	2.9 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	1.6 J	< 1 U	< 1 U	< 1 U	0.56 J	< 1 U	< 1 U	< 1 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	1.3 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 80 U	< 80 U	< 80 U	< 80 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 100 U	< 100 U	< 100 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
VAP-7-GW	13-14	10/9/2015	< 2 U	< 20 U	< 20 U	< 20 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 33 U	< 33 U	< 33 U	< 33 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U
VAP-9-GW	15-16	10/1/2015	< 1 U	1.3 J	< 10 U	< 10 U	8.3 J B	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-10-GW	16-17	10/20/2015	< 1 U	0.64 J	< 10 U	< 10 U	2.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
†	USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for groundwater concentration based an average groundwater temperature of 20 degrees Celsius and on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening leve assumes 26-year exposure duration, 350 days per year, 24 hours per day
BOLD and SHADED	Bold values in the shallowest groundwater interval exceed the calculated target residential VISLs for groundwater to vapor based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.

Acronyms:

B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
µg/L	Micrograms per liter.
NL	No screening criteria calculated.
RSL	Regional Screening Level.
U	Indicates the analyte was analyzed for but not detected.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.
VOC	Volatile organic compound.

Table 4
Summary of Shallow Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Cyclohexane	Dichloro-bromomethane	Dichloro-difluoromethane	Ethylbenzene	Ethylene Dibromide	Isopropyl-benzene	Methyl Acetate
USEPA Residential Groundwater VISLs (µg/L)†			**NL**	**1**	**300**	**NL**	**NL**	**1,300**	**NL**	**9.4**	**4.7**	**NL**	**NL**	**3,300**
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 1 U	< 1 U	0.74 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	0.47 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 8 U	< 8 U	220	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 80 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 10 U	< 10 U	170	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 100 U
VAP-7-GW	13-14	10/9/2015	< 2 U	< 2 U	< 2 U	44	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 20 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 3.3 U	< 3.3 U	85	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 33 U
VAP-9-GW	15-16	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-10-GW	16-17	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
†	USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for groundwater concentration based an average groundwater temperature of 20 degrees Celsius and on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening leve assumes 26-year exposure duration, 350 days per year, 24 hours per day
BOLD and SHADED	Bold values in the shallowest groundwater interval exceed the calculated target residential VISLs for groundwater to vapor based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.

Acronyms:

B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
µg/L	Micrograms per liter.
NL	No screening criteria calculated.
RSL	Regional Screening Level.
U	Indicates the analyte was analyzed for but not detected.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.
VOC	Volatile organic compound.

Table 4
Summary of Shallow Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Methyl tert-butyl ether	Methyl-cyclohexane	Methylene Chloride	Styrene	Tetra-chloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride	Total Xylenes
USEPA Residential Groundwater VISLs (µg/L)†			**550**	**NL**	**930**	**12,000**	**20**	**25,000**	**NL**	**NL**	**1.5**	**220**	**0.17**	**660**
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**2.1**	< 1 U	< 1 U	< 2 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.83 J	< 1 U	< 1 U	< 2 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	**81**	< 8 U	< 8 U	< 16 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 10 U	6.7 J B	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	**160**	< 10 U	< 10 U	< 20 U
VAP-7-GW	13-14	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	**21**	< 2 U	< 2 U	< 4 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**39**	< 3.3 U	< 3.3 U	< 6.7 U
VAP-9-GW	15-16	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-10-GW	16-17	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.28 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
†	USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for groundwater concentration based an average groundwater temperature of 20 degrees Celsius and on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening levels assumes 26-year exposure duration, 350 days per year, 24 hours per day.
BOLD and SHADED	Bold values in the shallowest groundwater interval exceed the calculated target residential VISLs for groundwater to vapor based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.

Acronyms:

B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
µg/L	Micrograms per liter.
NL	No screening criteria calculated.
RSL	Regional Screening Level.
U	Indicates the analyte was analyzed for but not detected.
USEPA	U.S. Environmental Protection Agency.
VISL	Vapor Intrusion Screening Level.
VOC	Volatile organic compound.

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,4-Trichlorobenzene	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3-Dichlorobenzene
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	15-16	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41 (DUP-1)	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	48-49	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 16 U	< 8 U	< 8 U	< 8 U	< 8 U
	20-21	10/7/2015	< 10 U F2	< 10 U	< 10 U	< 10 U	< 10 U F2	< 10 U F2	< 10 U	< 20 U	< 10 U	< 10 U	< 10 U	< 10 U
	25-26	10/7/2015	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 10 U	< 5 U	< 5 U	< 5 U	< 5 U
	30-31	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 10 U	< 10 U	< 10 U	< 10 U
	15-16	10/8/2015	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 20 U	< 10 U	< 10 U	< 10 U	< 10 U
	20-21	10/8/2015	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 67 U	< 33 U	< 33 U	< 33 U	< 33 U
	25-26	10/8/2015	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 80 U	< 40 U	< 40 U	< 40 U	< 40 U
	30-31	10/8/2015	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 100 U	< 50 U	< 50 U	< 50 U	< 50 U
	30-31 (DUP-2)	10/8/2015	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 100 U	< 50 U	< 50 U	< 50 U	< 50 U
	30-35	10/8/2015	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 80 U	< 40 U	< 40 U	< 40 U	< 40 U
	40-41	10/8/2015	< 25 U F2	< 25 U F2	< 25 U F2	< 25 U	< 25 U	< 25 U	< 25 U	< 50 U	< 25 U F2	< 25 U	< 25 U	< 25 U F2
	45-46	10/8/2015	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 8 U	< 4 U	< 4 U	< 4 U	< 4 U
	49-50	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,4-Trichlorobenzene	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3-Dichlorobenzene
Well/Sample Details														
VAP-7-GW	13-14	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U
	15-16	10/9/2015	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 10 U	< 5 U	< 5 U	< 5 U	< 5 U
	20-21	10/9/2015	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 10 U	< 5 U	< 5 U	< 5 U	< 5 U
	25-26	10/9/2015	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U
	30-31	10/9/2015	< 2 U F2	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U
	30-31 (DUP-3)	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U
	35-36	10/9/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	43-44	10/9/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	48-49	10/9/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U
	20-21	10/8/2015	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
	25-26	10/8/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U
	30-31	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-9-GW	15-16	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-10-GW	16-17	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U

Notes:

‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
U	Indicates the analyte was analyzed for but not detected.
VOC	Volatile organic compound.

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	1,4-Dichlorobenzene	2-Butanone (MEK)	2-Hexanone	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodi-bromomethane
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	0.72 J	< 10 U	< 10 U	2.9 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	15-16	10/2/2015	< 1 U	0.56 J	< 10 U	< 10 U	6.6 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/2/2015	< 1 U	0.79 J	< 10 U	< 10 U	4.9 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/2/2015	< 1 U	< 10 U	< 10 U	< 10 U	2.1 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/2/2015	< 1 U	< 10 U	< 10 U	< 10 U	4 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/2/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/2/2015	< 1 U	0.91 J	< 10 U	< 10 U	14	< 1 U	< 1 U	< 1 U	0.47 J	< 1 U	< 1 U	< 1 U
	45-46	10/2/2015	< 1 U	0.8 J	< 10 U	< 10 U	1.6 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/2/2015	< 1 U	0.59 J	< 10 U	< 10 U	3.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	4.8 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	6.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	2.3 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	6.5 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	9.5 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41 (DUP-1)	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	5.6 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	4.7 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/5/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	1.6 J	< 1 U	< 1 U	< 1 U	0.56 J	< 1 U	< 1 U	< 1 U
	20-21	10/6/2015	< 1 U	0.73 J	< 10 U	< 10 U	3.7 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	4.5 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/6/2015	< 1 U	1.3 J	< 10 U	< 10 U	5.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/6/2015	< 1 U	0.67 J	< 10 U	< 10 U	4.6 J	< 1 U	< 1 U	< 1 U	0.38 J	< 1 U	< 1 U	< 1 U
	40-41	10/6/2015	< 1 U	1.4 J	< 10 U	< 10 U	6.1 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/6/2015	< 1 U	0.81 J	< 10 U	< 10 U	2.8 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/6/2015	< 1 U	0.83 J	< 10 U	< 10 U	4.5 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	1.3 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/6/2015	< 1 U	1.3 J	< 10 U	< 10 U	3 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/6/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/7/2015	< 1 U	0.86 J	< 10 U	< 10 U	1.4 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/7/2015	< 1 U	0.53 J	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/7/2015	< 1 U	0.54 J	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	48-49	10/7/2015	< 1 U	1.5 J	< 10 U	< 10 U	1.7 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 80 U	< 80 U	< 80 U	< 80 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U
	20-21	10/7/2015	< 10 U	< 100 U	< 100 U	< 100 U	< 100 U	< 10 U F2	< 10 U	< 10 U	< 10 U F2	< 10 U F2	< 10 U	< 10 U
	25-26	10/7/2015	< 5 U	< 50 U	< 50 U	< 50 U	< 50 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
	30-31	10/7/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/7/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/7/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/7/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/7/2015	< 1 U	2.3 J	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 100 U	< 100 U	< 100 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
	15-16	10/8/2015	< 10 U	< 100 U	< 100 U	< 100 U	< 100 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
	20-21	10/8/2015	< 33 U	< 330 U	< 330 U	< 330 U	< 330 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U
	25-26	10/8/2015	< 40 U	< 400 U	< 400 U	< 400 U	< 400 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U
	30-31	10/8/2015	< 50 U	< 500 U	< 500 U	< 500 U	< 500 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
	30-31 (DUP-2)	10/8/2015	< 50 U	< 500 U	< 500 U	< 500 U	< 500 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
	30-35	10/8/2015	< 40 U	< 400 U	< 400 U	< 400 U	< 400 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U
	40-41	10/8/2015	< 25 U F2	< 250 U F2	< 250 U	< 250 U	< 250 U	< 25 U F2	< 25 U	< 25 U	< 25 U	< 25 U F2	< 25 U F2	< 25 U
	45-46	10/8/2015	< 4 U	< 40 U	< 40 U	< 40 U	< 40 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U
	49-50	10/8/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.9 J	< 1 U	< 1 U	< 1 U

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	1,4-Dichlorobenzene	2-Butanone (MEK)	2-Hexanone	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodi-bromomethane
Well/Sample Details														
VAP-7-GW	13-14	10/9/2015	< 2 U	< 20 U	< 20 U	< 20 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	15-16	10/9/2015	< 5 U	< 50 U	< 50 U	< 50 U	< 50 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
	20-21	10/9/2015	< 5 U	< 50 U	< 50 U	< 50 U	< 50 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
	25-26	10/9/2015	< 3.3 U	< 33 U	< 33 U	< 33 U	< 33 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U
	30-31	10/9/2015	< 2 U	< 20 U	< 20 U	< 20 U	< 20 U	< 2 U	< 2 U	< 2 U F2	< 2 U	< 2 U	< 2 U	< 2 U
	30-31 (DUP-3)	10/9/2015	< 2 U	< 20 U	< 20 U	< 20 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	35-36	10/9/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	43-44	10/9/2015	< 1 U	1.7 J	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.45 J	< 1 U	< 1 U	< 1 U
	48-49	10/9/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.4 J	< 1 U	< 1 U	< 1 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 33 U	< 33 U	< 33 U	< 33 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U
	20-21	10/8/2015	< 2.5 U	< 25 U	< 25 U	< 25 U	< 25 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
	25-26	10/8/2015	< 2 U	< 20 U	< 20 U	< 20 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	30-31	10/8/2015	< 1 U	< 10 U	< 10 U	< 10 U	1.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/8/2015	< 1 U	< 10 U	< 10 U	< 10 U	3.9 J	< 1 U	< 1 U	< 1 U	0.75 J	< 1 U	< 1 U	< 1 U
	40-41	10/8/2015	< 1 U	0.72 J	< 10 U	12	56	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.53 J	< 1 U
	45-46	10/8/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	49-50	10/8/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-9-GW	15-16	10/1/2015	< 1 U	1.3 J	< 10 U	< 10 U	8.3 J B	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/1/2015	< 1 U	1.2 J	< 10 U	< 10 U	2.3 J	< 1 U	< 1 U	< 1 U	0.64 J	< 1 U	< 1 U	< 1 U
	25-26	10/1/2015	< 1 U	0.66 J	< 10 U	< 10 U	2.8 J B	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/1/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.56 J	< 1 U	< 1 U	< 1 U
	35-36	10/1/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/1/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.52 J	< 1 U	< 1 U	< 1 U
	45-46	10/1/2015	< 1 U	0.68 J	< 10 U	< 10 U	1 J	< 1 U	< 1 U	< 1 U	0.47 J	< 1 U	< 1 U	< 1 U
	49-50	10/1/2015	< 1 U	0.65 J	< 10 U	< 10 U	5.1 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
VAP-10-GW	16-17	10/20/2015	< 1 U	0.64 J	< 10 U	< 10 U	2.2 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	20-21	10/20/2015	< 1 U	< 10 U	< 10 U	< 10 U	1.1 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	25-26	10/20/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	30-31	10/20/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	35-36	10/20/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	40-41	10/20/2015	< 1 U	1.9 J	< 10 U	< 10 U	4.5 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	45-46	10/20/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.59 J	< 1 U	< 1 U	< 1 U
	49-50	10/20/2015	< 1 U	< 10 U	< 10 U	< 10 U	< 10 U	< 1 U	< 1 U	< 1 U	0.43 J	< 1 U	< 1 U	< 1 U

Notes:

‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery is outside acceptable limits.
F2	MS/MSD RPD exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
U	Indicates the analyte was analyzed for but not detected.
VOC	Volatile organic compound.

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Cyclohexane	Dichloro-bromomethane	Dichloro-difluoromethane	Ethylbenzene	Ethylene Dibromide	Isopropyl-benzene	Methyl Acetate
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	15-16	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	20-21	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	25-26	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	30-31	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 1 U	< 1 U	0.74 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	20-21	10/5/2015	< 1 U	< 1 U	< 1 U	0.51 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	25-26	10/5/2015	< 1 U	< 1 U	< 1 U	0.54 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	30-31	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41 (DUP-1)	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	20-21	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	25-26	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	30-31	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	0.47 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	20-21	10/6/2015	< 1 U	< 1 U	< 1 U	10	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	25-26	10/6/2015	< 1 U	< 1 U	< 1 U	18	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	30-31	10/6/2015	< 1 U	< 1 U	< 1 U	5.2	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/7/2015	< 1 U	< 1 U	< 1 U	1.2	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	48-49	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 8 U	< 8 U	220	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 80 U
	20-21	10/7/2015	< 10 U	< 10 U F2	< 10 U	390 F1	< 10 U	< 10 U F2	< 10 U	< 10 U	< 10 U F2	< 10 U	< 10 U F2	< 100 U
	25-26	10/7/2015	< 5 U	< 5 U	< 5 U	130	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 50 U
	30-31	10/7/2015	< 1 U	< 1 U	< 1 U	2.8	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/7/2015	< 1 U	< 1 U	< 1 U	0.46 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/7/2015	< 1 U	< 1 U	< 1 U	0.27 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 10 U	< 10 U	170	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 100 U
	15-16	10/8/2015	< 10 U	< 10 U	< 10 U	270	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 100 U
	20-21	10/8/2015	< 33 U	< 33 U	< 33 U	580	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	< 330 U
	25-26	10/8/2015	< 40 U	< 40 U	< 40 U	1100	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 400 U
	30-31	10/8/2015	< 50 U	< 50 U	< 50 U	1300	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 500 U
	30-31 (DUP-2)	10/8/2015	< 50 U	< 50 U	< 50 U	1300	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 500 U
	30-35	10/8/2015	< 40 U	< 40 U	< 40 U	1000	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 400 U
	40-41	10/8/2015	< 25 U	< 25 U	< 25 U	630 F1	< 25 U	< 25 U	< 25 U	< 25 U F2	< 25 U F2	< 25 U	< 25 U	< 250 U F2
	45-46	10/8/2015	< 4 U	< 4 U	< 4 U	76	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 40 U
	49-50	10/8/2015	< 1 U	< 1 U	< 1 U	3.5	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Cyclohexane	Dichloro-bromomethane	Dichloro-difluoromethane	Ethylbenzene	Ethylene Dibromide	Isopropyl-benzene	Methyl Acetate
Well/Sample Details														
VAP-7-GW	13-14	10/9/2015	< 2 U	< 2 U	< 2 U	44	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 20 U
	15-16	10/9/2015	< 5 U	< 5 U	< 5 U	130	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 50 U
	20-21	10/9/2015	< 5 U	< 5 U	< 5 U	140	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 50 U
	25-26	10/9/2015	< 3.3 U	< 3.3 U	< 3.3 U	100	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 33 U
	30-31	10/9/2015	< 2 U F2	< 2 U	< 2 U F2 F1	54	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 20 U
	30-31 (DUP-3)	10/9/2015	< 2 U	< 2 U	< 2 U	55	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 20 U
	35-36	10/9/2015	< 1 U	< 1 U	< 1 U	14	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	43-44	10/9/2015	< 1 U	< 1 U	< 1 U	10	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	48-49	10/9/2015	< 1 U	< 1 U	< 1 U	3.9	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 3.3 U	< 3.3 U	85	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 33 U
	20-21	10/8/2015	< 2.5 U	< 2.5 U	< 2.5 U	63	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 25 U
	25-26	10/8/2015	< 2 U	< 2 U	< 2 U	54	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 20 U
	30-31	10/8/2015	< 1 U	< 1 U	< 1 U	24	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/8/2015	< 1 U	< 1 U	< 1 U	7.5	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/8/2015	< 1 U	0.37 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/8/2015	< 1 U	< 1 U	< 1 U	0.83 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-9-GW	15-16	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	20-21	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	25-26	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	30-31	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
VAP-10-GW	16-17	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	20-21	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	25-26	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	30-31	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	35-36	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	40-41	10/20/2015	< 1 U	0.37 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	45-46	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U
	49-50	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U

Notes:

‡ Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
B Compound was found in the blank and sample.
F1 MS and/or MSD recovery is outside acceptable limits.
F2 MS/MSD RPD exceeds control limits.
J Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L Micrograms per liter.
U Indicates the analyte was analyzed for but not detected.
VOC Volatile organic compound.

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Methyl tert-butyl ether	Methyl-cyclohexane	Methylene Chloride	Styrene	Tetra-chloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride	Total Xylenes
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	15-16	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	20-21	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	25-26	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	30-31	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	35-36	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	40-41	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	49-50	10/2/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-2 GW	15-16	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	2.1	< 1 U	< 1 U	< 2 U
	20-21	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.4 J	< 1 U	< 1 U	< 2 U
	25-26	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	30-31	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	35-36	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	40-41	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	40-41 (DUP-1)	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	49-50	10/5/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-3-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	20-21	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	25-26	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	30-31	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	35-36	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	40-41	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	49-50	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-4-GW	15-16	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.83 J	< 1 U	< 1 U	< 2 U
	20-21	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	12	< 1 U	< 1 U	< 2 U
	25-26	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	19	< 1 U	< 1 U	< 2 U
	30-31	10/6/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	6.6	< 1 U	< 1 U	< 2 U
	35-36	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.95 J	< 1 U	< 1 U	< 2 U
	40-41	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	48-49	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.26 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-5-GW	15-16	10/7/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	81	< 8 U	< 8 U	< 16 U
	20-21	10/7/2015	< 10 U F2	< 10 U F2	< 10 U F2	< 10 U	< 10 U F2	< 10 U F2	< 10 U F2	< 10 U	130	< 10 U	< 10 U	< 20 U F2
	25-26	10/7/2015	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	57	< 5 U	< 5 U	< 10 U
	30-31	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	1.3	< 1 U	< 1 U	< 2 U
	35-36	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.27 J	< 1 U	< 1 U	< 2 U
	40-41	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	49-50	10/7/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-6-GW	12-13	10/8/2015	< 10 U	< 10 U	6.7 J B	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	160	< 10 U	< 10 U	< 20 U
	15-16	10/8/2015	< 10 U	< 10 U	6.3 J B	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	260	< 10 U	< 10 U	< 20 U
	20-21	10/8/2015	< 33 U	< 33 U	23 J B	< 33 U	< 33 U	< 33 U	< 33 U	< 33 U	900	< 33 U	< 33 U	< 67 U
	25-26	10/8/2015	< 40 U	< 40 U	33 J B	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	1300	< 40 U	< 40 U	< 80 U
	30-31	10/8/2015	< 50 U	< 50 U	31 J B	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	1600	< 50 U	< 50 U	< 100 U
	30-31 (DUP-2)	10/8/2015	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	21 J	< 50 U	1600	< 50 U	< 50 U	< 100 U
	30-35	10/8/2015	< 40 U	< 40 U	29 J B	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	1300	< 40 U	< 40 U	< 80 U
	40-41	10/8/2015	< 25 U F2	< 25 U	17 J B	< 25 U	< 25 U F2	< 25 U F2	< 25 U	< 25 U	690 F1	< 25 U F2	< 25 U	< 50 U F2
	45-46	10/8/2015	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	110	< 4 U	< 4 U	< 8 U
	49-50	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	6.5	< 1 U	< 1 U	< 2 U

Table 5
Summary of Groundwater VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Methyl tert-butyl ether	Methyl-cyclohexane	Methylene Chloride	Styrene	Tetra-chloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride	Total Xylenes
Well/Sample Details														
VAP-7-GW	13-14	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	21	< 2 U	< 2 U	< 4 U
	15-16	10/9/2015	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	62	< 5 U	< 5 U	< 10 U
	20-21	10/9/2015	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	79	< 5 U	< 5 U	< 10 U
	25-26	10/9/2015	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	76	< 3.3 U	< 3.3 U	< 6.7 U
	30-31	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	33 F1	< 2 U	< 2 U	< 4 U
	30-31 (DUP-3)	10/9/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	37	< 2 U	< 2 U	< 4 U
	35-36	10/9/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	10	< 1 U	< 1 U	< 2 U
	43-44	10/9/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	11	< 1 U	< 1 U	< 2 U
	48-49	10/9/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	6.6	< 1 U	< 1 U	< 2 U
VAP-8-GW	18-19	10/8/2015	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	39	< 3.3 U	< 3.3 U	< 6.7 U
	20-21	10/8/2015	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	31	< 2.5 U	< 2.5 U	< 5 U
	25-26	10/8/2015	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	24	< 2 U	< 2 U	< 4 U
	30-31	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	12	< 1 U	< 1 U	< 2 U
	35-36	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	5	< 1 U	< 1 U	< 2 U
	40-41	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.56 J
	45-46	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	1.4	< 1 U	< 1 U	< 2 U
	49-50	10/8/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.31 J	< 1 U	< 1 U	< 2 U
VAP-9-GW	15-16	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	20-21	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	25-26	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	30-31	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	35-36	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	40-41	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	49-50	10/1/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
VAP-10-GW	16-17	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.28 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	20-21	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	25-26	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	30-31	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	35-36	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	40-41	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	45-46	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U
	49-50	10/20/2015	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 2 U

Notes:

‡ Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8260B; presented in µg/L.
B Compound was found in the blank and sample.
F1 MS and/or MSD recovery is outside acceptable limits.
F2 MS/MSD RPD exceeds control limits.
J Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L Micrograms per liter.
U Indicates the analyte was analyzed for but not detected.
VOC Volatile organic compound.

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	1,1'-Biphenyl	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene
Well/Sample Details													
VAP-1-GW	12-13	10/2/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	15-16	10/2/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	20-21	10/2/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	25-26	10/2/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/2/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	35-36	10/2/2015	< 0.94 U	< 4.7 U	< 4.7 U	< 1.9 U	< 1.9 U	< 38 U	< 4.7 U	< 4.7 U	< 0.94 U	< 0.94 U	< 0.19 U
	40-41	10/2/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	45-46	10/2/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	49-50	10/2/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
VAP-2 GW	15-16	10/5/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	20-21	10/5/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	25-26	10/5/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/5/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	35-36 RE	10/5/2015	< 0.96 U H	< 4.8 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 38 U H	< 4.8 U H	< 4.8 U H	< 0.96 U H	< 0.96 U H	< 0.19 U H
	40-41 RE	10/5/2015	< 0.96 U H	< 4.8 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 38 U H	< 4.8 U H	< 4.8 U H	< 0.96 U H	< 0.96 U H	< 0.19 U H
	40-41 (DUP-1) RE	10/5/2015	< 0.96 U H	< 4.8 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 38 U H	< 4.8 U H	< 4.8 U H	< 0.96 U H	< 0.96 U H	< 0.19 U H
	45-46 RE	10/5/2015	< 0.96 U H	< 4.8 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 38 U H	< 4.8 U H	< 4.8 U H	< 0.96 U H	< 0.96 U H	< 0.19 U H
	49-50	10/5/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
VAP-3-GW	15-16	10/6/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	20-21	10/6/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	25-26	10/6/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/6/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	35-36	10/6/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	40-41	10/6/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	45-46	10/6/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	49-50	10/6/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
VAP-4-GW	15-16	10/6/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	20-21	10/6/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	25-26	10/6/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	30-31	10/6/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	35-36	10/7/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	40-41	10/7/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	45-46	10/7/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	48-49	10/7/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
VAP-5-GW	15-16	10/7/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	20-21	10/7/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	25-26	10/7/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/7/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	35-36	10/7/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	40-41	10/7/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	45-46	10/7/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--	--	--	--
	15-16 RE	10/8/2015	< 1 U H	< 5 U H	< 5 U H	< 2 U H	< 2 U H	< 40 U H	< 5 U H	< 5 U H	< 1 U H	< 1 U H	< 0.2 U H
	20-21	10/8/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	20-21 RE	10/8/2015	< 0.96 U H	< 4.8 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 38 U H	< 4.8 U H	< 4.8 U H	< 0.96 U H	< 0.96 U H	< 0.19 U H
	25-26	10/8/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	25-26 RE	10/8/2015	< 0.93 U H	< 4.6 U H	< 4.6 U H	< 1.9 U H	< 1.9 U H	< 37 U H	< 4.6 U H	< 4.6 U H	< 0.93 U H	< 0.93 U H	< 0.19 U H
	30-31	10/8/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31 RE	10/8/2015	< 0.93 U H	< 4.6 U H	< 4.6 U H	< 1.9 U H	< 1.9 U H	< 37 U H	< 4.6 U H	< 4.6 U H	< 0.93 U H	< 0.93 U H	< 0.19 U H
	30-31 (DUP-2)	10/8/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	30-35	10/8/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	40-41	10/8/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	45-46	10/8/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	49-50	10/8/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	1,1'-Biphenyl	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene
Well/Sample Details													
VAP-7-GW	13-14	10/9/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	15-16	10/9/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	20-21	10/9/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	25-26	10/9/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/9/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31 (DUP-3) RE	10/9/2015	< 1 U H	< 5 U H	< 5 U H	< 2 U H	< 2 U H	< 40 U H	< 5 U H	< 5 U H	< 1 U H	< 1 U H	< 0.2 U H
	35-36 RE	10/9/2015	< 1.1 U H	< 5.4 U H	< 5.4 U H	< 2.2 U H	< 2.2 U H	< 43 U H	< 5.4 U H	< 5.4 U H	< 1.1 U H	< 1.1 U H	< 0.22 U H
	43-44 RE	10/9/2015	< 1 U H	< 5 U H	< 5 U H	< 2 U H	< 2 U H	< 40 U H	< 5 U H	< 5 U H	< 1 U H	< 1 U H	< 0.2 U H
	48-49 RE	10/9/2015	< 1.2 U H	< 6 U H	< 6 U H	< 2.4 U H	< 2.4 U H	< 48 U H	< 6 U H	< 6 U H	< 1.2 U H	< 1.2 U H	< 0.24 U H
VAP-8-GW	18-19 RE	10/8/2015	< 1.3 U H	< 6.3 U H	< 6.3 U H	< 2.5 U H	< 2.5 U H	< 50 U H	< 6.3 U H	< 6.3 U H	< 1.3 U H	< 1.3 U H	< 0.25 U H
	20-21 RE	10/8/2015	< 1.3 U H	6.6 U H	6.6 U H	< 2.6 U H	< 2.6 U H	< 53 U H	6.6 U H	6.6 U H	< 1.3 U H	< 1.3 U H	< 0.26 U H
	25-26	10/8/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/8/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	35-36	10/8/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	40-41	10/8/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	45-46	10/8/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	49-50	10/8/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
VAP-9-GW	15-16	10/1/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	20-21	10/1/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	25-26	10/1/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	30-31	10/1/2015	< 1 U	< 5.1 U	< 5.1 U	< 2 U	< 2 U	< 41 U	< 5.1 U	< 5.1 U	< 1 U	< 1 U	< 0.2 U
	35-36	10/1/2015	< 1 U	< 5 U	< 5 U	< 2 U	< 2 U	< 40 U	< 5 U	< 5 U	< 1 U	< 1 U	< 0.2 U
	40-41	10/1/2015	< 0.89 U	< 4.5 U	< 4.5 U	< 1.8 U	< 1.8 U	< 36 U	< 4.5 U	< 4.5 U	< 0.89 U	< 0.89 U	< 0.18 U
	45-46	10/1/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	49-50	10/1/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
VAP-10-GW	16-17	10/20/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	20-21	10/20/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	25-26	10/20/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	30-31	10/20/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	35-36	10/20/2015	< 0.89 U	< 4.5 U	< 4.5 U	< 1.8 U	< 1.8 U	< 36 U	< 4.5 U	< 4.5 U	< 0.89 U	< 0.89 U	< 0.18 U
	40-41	10/20/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U
	45-46	10/20/2015	< 0.96 U	< 4.8 U	< 4.8 U	< 1.9 U	< 1.9 U	< 38 U	< 4.8 U	< 4.8 U	< 0.96 U	< 0.96 U	< 0.19 U
	49-50	10/20/2015	< 0.93 U	< 4.6 U	< 4.6 U	< 1.9 U	< 1.9 U	< 37 U	< 4.6 U	< 4.6 U	< 0.93 U	< 0.93 U	< 0.19 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits.
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8270C; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
RE	Sample was re-analyzed.
SVOC	Semi-volatile organic compound.
U	Indicates the analyte was analyzed for but not detected.

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3 & 4 Methylphenol	3,3'-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl Phenyl Ether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl Phenyl Ether	4-Nitroaniline
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	15-16	10/2/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	20-21	10/2/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	25-26	10/2/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/2/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	35-36	10/2/2015	< 0.94 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.7 U	< 1.9 U	< 4.7 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	40-41	10/2/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	45-46	10/2/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	49-50	10/2/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
VAP-2 GW	15-16	10/5/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	20-21	10/5/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	25-26	10/5/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/5/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	35-36 RE	10/5/2015	< 0.96 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.8 U H F2	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H
	40-41 RE	10/5/2015	< 0.96 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H
	40-41 (DUP-1) RE	10/5/2015	< 0.96 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H
	45-46 RE	10/5/2015	< 0.96 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H
	49-50	10/5/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
VAP-3-GW	15-16	10/6/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	20-21	10/6/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	25-26	10/6/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/6/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	35-36	10/6/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	40-41	10/6/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	45-46	10/6/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	49-50	10/6/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
VAP-4-GW	15-16	10/6/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	20-21	10/6/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	25-26	10/6/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	30-31	10/6/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	35-36	10/7/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	40-41	10/7/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	45-46	10/7/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	48-49	10/7/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
VAP-5-GW	15-16	10/7/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	20-21	10/7/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	25-26	10/7/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/7/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	35-36	10/7/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	40-41	10/7/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	45-46	10/7/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--	--	--	--	--
	15-16 RE	10/8/2015	< 1 U H	< 2 U H	< 2 U H	< 2 U H	< 5 U H *	< 2 U H	< 5 U H	< 2 U H	< 2 U H	< 2 U H *	< 2 U H	< 2 U H
	20-21	10/8/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	20-21 RE	10/8/2015	< 0.96 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.8 U H *	< 1.9 U H	< 4.8 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H *	< 1.9 U H	< 1.9 U H
	25-26	10/8/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	25-26 RE	10/8/2015	< 0.93 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.6 U H *	< 1.9 U H	< 4.6 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H *	< 1.9 U H	< 1.9 U H
	30-31	10/8/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31 RE	10/8/2015	< 0.93 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H	< 4.6 U H *	< 1.9 U H	< 4.6 U H	< 1.9 U H	< 1.9 U H	< 1.9 U H *	< 1.9 U H	< 1.9 U H
	30-31 (DUP-2)	10/8/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-35	10/8/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	40-41	10/8/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	45-46	10/8/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	49-50	10/8/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3 & 4 Methylphenol	3,3'-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl Phenyl Ether	4-Chloro-3-Methylphenol	4-Chloroaniline	4-Chlorophenyl Phenyl Ether	4-Nitroaniline
Well/Sample Details														
VAP-7-GW	13-14	10/9/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	15-16	10/9/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	20-21	10/9/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	25-26	10/9/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/9/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31 (DUP-3) RE	10/9/2015	< 1 U H	< 2 U H	< 2 U H	< 2 U H	< 5 U H *	< 2 U H	< 5 U H	< 2 U H	< 2 U H	< 2 U H *	< 2 U H	< 2 U H
	35-36 RE	10/9/2015	< 1.1 U H	< 2.2 U H	< 2.2 U H	< 2.2 U H	< 5.4 U H *	< 2.2 U H	< 5.4 U H	< 2.2 U H	< 2.2 U H	< 2.2 U H *	< 2.2 U H	< 2.2 U H
	43-44 RE	10/9/2015	< 1 U H	< 2 U H	< 2 U H	< 2 U H	< 5 U H *	< 2 U H	< 5 U H	< 2 U H	< 2 U H	< 2 U H *	< 2 U H	< 2 U H
	48-49 RE	10/9/2015	< 1.2 U H	< 2.4 U H	< 2.4 U H	< 2.4 U H	< 6 U H *	< 2.4 U H	< 6 U H	< 2.4 U H	< 2.4 U H	< 2.4 U H *	< 2.4 U H	< 2.4 U H
VAP-8-GW	18-19 RE	10/8/2015	< 1.3 U H	< 2.5 U H	< 2.5 U H	< 2.5 U H	< 6.3 U H *	< 2.5 U H	< 6.3 U H	< 2.5 U H	< 2.5 U H	< 2.5 U H *	< 2.5 U H	< 2.5 U H
	20-21 RE	10/8/2015	< 1.3 U H	< 2.6 U H	< 2.6 U H	< 2.6 U H	6.6 U H *	< 2.6 U H	6.6 U H	< 2.6 U H	< 2.6 U H	< 2.6 U H *	< 2.6 U H	< 2.6 U H
	25-26	10/8/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/8/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	35-36	10/8/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	40-41	10/8/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	45-46	10/8/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	49-50	10/8/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
VAP-9-GW	15-16	10/1/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	20-21	10/1/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	25-26	10/1/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	30-31	10/1/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5.1 U	< 2 U	< 5.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	35-36	10/1/2015	< 1 U	< 2 U	< 2 U	< 2 U	< 5 U	< 2 U	< 5 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
	40-41	10/1/2015	< 0.89 U	< 1.8 U	< 1.8 U	< 1.8 U	< 4.5 U	< 1.8 U	< 4.5 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U
	45-46	10/1/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
	49-50	10/1/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
VAP-10-GW	16-17	10/20/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U *	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U
	20-21	10/20/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U *	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U
	25-26	10/20/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U *	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U
	30-31	10/20/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U *	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U
	35-36	10/20/2015	< 0.89 U	< 1.8 U	< 1.8 U	< 1.8 U	< 4.5 U *	< 1.8 U	< 4.5 U	< 1.8 U	< 1.8 U	< 1.8 U *	< 1.8 U	< 1.8 U
	40-41	10/20/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U *	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U
	45-46	10/20/2015	< 0.96 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.8 U *	< 1.9 U	< 4.8 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U
	49-50	10/20/2015	< 0.93 U	< 1.9 U	< 1.9 U	< 1.9 U	< 4.6 U *	< 1.9 U	< 4.6 U	< 1.9 U	< 1.9 U	< 1.9 U *	< 1.9 U	< 1.9 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits.
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8270C; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
RE	Sample was re-analyzed.
SVOC	Semi-volatile organic compound.
U	Indicates the analyte was analyzed for but not detected.

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	4-Nitrophenol	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Atrazine	Benzaldehyde	Benzo[a] anthracene	Benzo[a] pyrene	Benzo[b] fluoranthene	Benzo[g,h,i] perylene
Well/Sample Details													
VAP-1-GW	12-13	10/2/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	15-16	10/2/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21	10/2/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26	10/2/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/2/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36	10/2/2015	< 4.7 U	< 0.19 U	< 0.19 U	< 0.94 U	< 0.19 U	< 0.94 U	< 0.94 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	40-41	10/2/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	45-46	10/2/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	49-50	10/2/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U *	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VAP-2 GW	15-16	10/5/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21	10/5/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26	10/5/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/5/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36 RE	10/5/2015	< 4.8 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	40-41 RE	10/5/2015	< 4.8 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	40-41 (DUP-1) RE	10/5/2015	< 4.8 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	45-46 RE	10/5/2015	< 4.8 U H	< 0.19 U H	< 0.19 U H	0.22 J H	< 0.19 U H	< 0.96 U H	< 0.96 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	49-50	10/5/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
VAP-3-GW	15-16	10/6/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21	10/6/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26	10/6/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/6/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36	10/6/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	40-41	10/6/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	45-46	10/6/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	49-50	10/6/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
VAP-4-GW	15-16	10/6/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21	10/6/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U *	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	25-26	10/6/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U *	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	30-31	10/6/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36	10/7/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	40-41	10/7/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	45-46	10/7/2015	< 4.6 U	< 0.19 U	< 0.19 U	0.28 J	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	48-49	10/7/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
VAP-5-GW	15-16	10/7/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	20-21	10/7/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26	10/7/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/7/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36	10/7/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	40-41	10/7/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	45-46	10/7/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--	--	--	--
	15-16 RE	10/8/2015	< 5 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 0.2 U H	< 1 U H	< 1 U H *	< 0.2 U H	< 0.2 U H	< 0.2 U H	< 0.2 U H
	20-21	10/8/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21 RE	10/8/2015	< 4.8 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	25-26	10/8/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26 RE	10/8/2015	< 4.6 U H	< 0.19 U H	< 0.19 U H	< 0.93 U H	< 0.19 U H	< 0.93 U H	< 0.93 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	30-31	10/8/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31 RE	10/8/2015	< 4.6 U H	< 0.19 U H	< 0.19 U H	< 0.93 U H	< 0.19 U H	< 0.93 U H	< 0.93 U H *	< 0.19 U H	< 0.19 U H	< 0.19 U H	< 0.19 U H
	30-31 (DUP-2)	10/8/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-35	10/8/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	40-41	10/8/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	45-46	10/8/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	49-50	10/8/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	4-Nitrophenol	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Atrazine	Benzaldehyde	Benzo[a] anthracene	Benzo[a] pyrene	Benzo[b] fluoranthene	Benzo[g,h,i] perylene
Well/Sample Details													
VAP-7-GW	13-14	10/9/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	15-16	10/9/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	20-21	10/9/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26	10/9/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/9/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31 (DUP-3) RE	10/9/2015	< 5 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 0.2 U H	< 1 U H	< 1 U H *	< 0.2 U H	< 0.2 U H	< 0.2 U H	< 0.2 U H
	35-36 RE	10/9/2015	< 5.4 U H	< 0.22 U H	< 0.22 U H	< 1.1 U H	< 0.22 U H	< 1.1 U H	< 1.1 U H *	< 0.22 U H	< 0.22 U H	< 0.22 U H	< 0.22 U H
	43-44 RE	10/9/2015	< 5 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 0.2 U H	< 1 U H	< 1 U H *	< 0.2 U H	< 0.2 U H	< 0.2 U H	< 0.2 U H
	48-49 RE	10/9/2015	< 6 U H	< 0.24 U H	< 0.24 U H	< 1.2 U H	< 0.24 U H	< 1.2 U H	< 1.2 U H *	< 0.24 U H	< 0.24 U H	< 0.24 U H	< 0.24 U H
VAP-8-GW	18-19 RE	10/8/2015	< 6.3 U H	< 0.25 U H	< 0.25 U H	< 1.3 U H	< 0.25 U H	< 1.3 U H	< 1.3 U H *	< 0.25 U H	< 0.25 U H	< 0.25 U H	< 0.25 U H
	20-21 RE	10/8/2015	6.6 U H	< 0.26 U H	< 0.26 U H	< 1.3 U H	< 0.26 U H	< 1.3 U H	< 1.3 U H *	< 0.26 U H	< 0.26 U H	< 0.26 U H	< 0.26 U H
	25-26	10/8/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/8/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36	10/8/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	40-41	10/8/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	45-46	10/8/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	49-50	10/8/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
VAP-9-GW	15-16	10/1/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21	10/1/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U *	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	25-26	10/1/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	30-31	10/1/2015	< 5.1 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U *	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	35-36	10/1/2015	< 5 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 1 U	< 1 U *	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
	40-41	10/1/2015	< 4.5 U	< 0.18 U	< 0.18 U	< 0.89 U	< 0.18 U	< 0.89 U	< 0.89 U *	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U
	45-46	10/1/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	49-50	10/1/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
VAP-10-GW	16-17	10/20/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	20-21	10/20/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	25-26	10/20/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	0.33	0.22
	30-31	10/20/2015	< 4.6 U	< 0.19 U	< 0.19 U	0.2 J	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	35-36	10/20/2015	< 4.5 U	< 0.18 U	< 0.18 U	< 0.89 U	< 0.18 U	< 0.89 U	< 0.89 U *	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U
	40-41	10/20/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	45-46	10/20/2015	< 4.8 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.19 U	< 0.96 U	< 0.96 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U
	49-50	10/20/2015	< 4.6 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.19 U	< 0.93 U	< 0.93 U *	< 0.19 U	< 0.19 U	< 0.19 U	< 0.19 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits.
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8270C; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
RE	Sample was re-analyzed.
SVOC	Semi-volatile organic compound.
U	Indicates the analyte was analyzed for but not detected.

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Benzo[k] fluoranthene	Bis(2-chloro-isopropyl)ether	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-ethylhexyl) phthalate	Butyl Benzyl Phthalate	Caprolactam	Carbazole	Chrysene	Dibenz(a,h) anthracene	Dibenzofuran	Diethyl Phthalate
Well/Sample Details														
VAP-1-GW	12-13	10/2/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	28	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	15-16	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	35	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	20-21	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	100	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	25-26	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	14 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31	10/2/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	24	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	35-36	10/2/2015	< 0.19 U	< 0.94 U	< 0.94 U	< 0.94 U	< 1.9 U	< 0.94 U	25 B	< 0.94 U	< 0.19 U	< 0.19 U	< 0.94 U	< 0.94 U
	40-41	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	9.4 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	45-46	10/2/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	9.5	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	49-50	10/2/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	28	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
VAP-2 GW	15-16	10/5/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.8 J B	< 0.96 U	160 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	1.9
	20-21	10/5/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.5 J B	< 0.93 U	3.2 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.42 J
	25-26	10/5/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	2.8 B	< 0.96 U	52 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.32 J
	30-31	10/5/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	29 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	35-36 RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 1.9 U H	< 0.96 U H	4.7 J H F2 B	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H
	40-41 RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 1.9 U H	< 0.96 U H	9.6 H B	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	0.23 J H
	40-41 (DUP-1) RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 1.9 U H	< 0.96 U H	42 H B	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	0.23 J H
	45-46 RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 1.9 U H	< 0.96 U H	7.6 H B	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	0.22 J H
	49-50	10/5/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	2 B	< 0.96 U	180 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
VAP-3-GW	15-16	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	2.1 B	< 0.96 U	2 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	20-21	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.5 J	< 0.96 U	95 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.41 J
	25-26	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.8 J B	< 0.96 U	1000 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.23 J
	30-31	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.5 J	< 0.96 U	190 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.57 J
	35-36	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	2.1 B	< 0.93 U	1500 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	40-41	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	2.1 B	< 0.93 U	800 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	45-46	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	330 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	49-50	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.6 J B	< 0.93 U	1600 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
VAP-4-GW	15-16	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	3 B	< 0.96 U	240 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.31 J
	20-21	10/6/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	2.3 B	< 1 U	170 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	25-26	10/6/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	2.2 B	< 1 U	45 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	30-31	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.6 J B	< 0.96 U	190 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	35-36	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	72 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	40-41	10/7/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	6.8 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	45-46	10/7/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.6 J	< 0.93 U	58 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	48-49	10/7/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	110 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
VAP-5-GW	15-16	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	1.7 J B	< 1 U	120 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	20-21	10/7/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	3.1 B	< 0.93 U	260 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.22 J
	25-26	10/7/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	20 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31	10/7/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.7 J B	< 0.96 U	52 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	35-36	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	30 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	40-41	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	320 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	45-46	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	150 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--	--	--	--	--
	15-16 RE	10/8/2015	< 0.2 U H	< 1 U H	< 1 U H	< 1 U H	1.5 J H	< 1 U H	13 H B	< 1 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 1 U H
	20-21	10/8/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	4.2 B	< 0.93 U	160 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	20-21 RE	10/8/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	3.7 H	< 0.96 U H	71 H B	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H
	25-26	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.9 B	< 0.96 U	30 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	25-26 RE	10/8/2015	< 0.19 U H	< 0.93 U H	< 0.93 U H	< 0.93 U H	< 1.9 U H	< 0.93 U H	52 H B	< 0.93 U H	< 0.19 U H	< 0.19 U H	< 0.93 U H	< 0.93 U H
	30-31	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	2.2 B	< 0.96 U	91 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31 RE	10/8/2015	< 0.19 U H	< 0.93 U H	< 0.93 U H	< 0.93 U H	< 1.9 U H	< 0.93 U H	22 H B	< 0.93 U H	< 0.19 U H	< 0.19 U H	< 0.93 U H	< 0.93 U H
	30-31 (DUP-2)	10/8/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	2.2 B	< 0.93 U	31 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.3 J
	30-35	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.5 J B	< 0.96 U	150 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	40-41	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	1.7 J B	< 1 U	18 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	45-46	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	1.8 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	49-50	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	1.8 J B	< 1 U	1.3 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Benzo[k] fluoranthene	Bis(2-chloro-isopropyl)ether	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-ethylhexyl) phthalate	Butyl Benzyl Phthalate	Caprolactam	Carbazole	Chrysene	Dibenz(a,h) anthracene	Dibenzofuran	Diethyl Phthalate
Well/Sample Details														
VAP-7-GW	13-14	10/9/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.7 J B	< 0.96 U	1.5 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	15-16	10/9/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	1.1 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	20-21	10/9/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.8 J B	< 0.93 U	1.8 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.21 J
	25-26	10/9/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.5 J B	< 0.96 U	< 4.8 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31	10/9/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	0.68 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31 (DUP-3) RE	10/9/2015	< 0.2 U H	< 1 U H	< 1 U H	< 1 U H	< 2 U H	< 1 U H	1.3 J H B	< 1 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 1 U H
	35-36 RE	10/9/2015	< 0.22 U H	< 1.1 U H	< 1.1 U H	< 1.1 U H	< 2.2 U H	< 1.1 U H	2 J H B	< 1.1 U H	< 0.22 U H	< 0.22 U H	< 1.1 U H	< 1.1 U H
	43-44 RE	10/9/2015	< 0.2 U H	< 1 U H	< 1 U H	< 1 U H	< 2 U H	< 1 U H	3.9 J H B	< 1 U H	< 0.2 U H	< 0.2 U H	< 1 U H	0.22 J H
	48-49 RE	10/9/2015	< 0.24 U H	< 1.2 U H	< 1.2 U H	< 1.2 U H	< 2.4 U H	< 1.2 U H	2.3 J H B	< 1.2 U H	< 0.24 U H	< 0.24 U H	< 1.2 U H	< 1.2 U H
VAP-8-GW	18-19 RE	10/8/2015	< 0.25 U H	< 1.3 U H	< 1.3 U H	< 1.3 U H	< 2.5 U H	< 1.3 U H	270 H B	< 1.3 U H	< 0.25 U H	< 0.25 U H	< 1.3 U H	0.65 J H
	20-21 RE	10/8/2015	< 0.26 U H	< 1.3 U H	< 1.3 U H	< 1.3 U H	< 2.6 U H	< 1.3 U H	16 H B	< 1.3 U H	< 0.26 U H	< 0.26 U H	< 1.3 U H	0.51 J H
	25-26	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	150 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	2 B	< 0.96 U	70 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.24 J
	35-36	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	1.6 J B	< 1 U	75 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	0.29 J
	40-41	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	1.5 J B	< 1 U	3.3 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	45-46	10/8/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	2.3 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.22 J
	49-50	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	3.5 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
VAP-9-GW	15-16	10/1/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 1.9 U	< 0.96 U	< 4.8 U	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	20-21	10/1/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	2.5 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	0.26 J
	25-26	10/1/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.7 J	< 0.96 U	1.6 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U
	30-31	10/1/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	2.1 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	35-36	10/1/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 2 U	< 1 U	2 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U
	40-41	10/1/2015	< 0.18 U	< 0.89 U	< 0.89 U	< 0.89 U	< 1.8 U	< 0.89 U	< 4.5 U	< 0.89 U	< 0.18 U	< 0.18 U	< 0.89 U	< 0.89 U
	45-46	10/1/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	1.1 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
	49-50	10/1/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	4.3	< 0.93 U	17	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U
VAP-10-GW	16-17	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 1.9 U	< 0.93 U	8.5	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.31 J
	20-21	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.6 J	< 0.93 U	30	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.78 J
	25-26	10/20/2015	0.2	< 0.93 U	< 0.93 U	< 0.93 U	1.7 J	< 0.93 U	0.82 J	< 0.93 U	0.29	< 0.19 U	< 0.93 U	0.21 J
	30-31	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.8 J	< 0.93 U	0.85 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.29 J
	35-36	10/20/2015	< 0.18 U	< 0.89 U	< 0.89 U	< 0.89 U	1.4 J	< 0.89 U	0.72 J	< 0.89 U	< 0.18 U	< 0.18 U	< 0.89 U	< 0.89 U
	40-41	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.8 J	< 0.93 U	0.85 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.25 J
	45-46	10/20/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	1.8 J	< 0.96 U	0.91 J	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	0.33 J
	49-50	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	1.5 J	< 0.93 U	0.68 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	0.25 J

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits.
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8270C; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
RE	Sample was re-analyzed.
SVOC	Semi-volatile organic compound.
U	Indicates the analyte was analyzed for but not detected.

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Dimethyl Phthalate	Di-n-butyl Phthalate	Di-n-octyl Phthalate	Fluoranthene	Fluorene	Hexachloro-benzene	Hexachloro-butadiene	Hexachlorocyclo-pentadiene	Hexachloro-ethane	Indeno[1,2,3-cd]-pyrene	Isophorone
Well/Sample Details													
VAP-1-GW	12-13	10/2/2015	< 0.93 U	0.59 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	15-16	10/2/2015	< 0.96 U	0.38 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	20-21	10/2/2015	< 0.96 U	0.87 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	25-26	10/2/2015	< 0.96 U	0.84 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31	10/2/2015	< 0.93 U	0.8 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	35-36	10/2/2015	< 0.94 U	0.79 J B	< 0.94 U	< 0.19 U	< 0.19 U	< 0.94 U	< 0.94 U	< 9.4 U	< 0.94 U	< 0.19 U	< 0.94 U
	40-41	10/2/2015	< 0.96 U	0.63 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	45-46	10/2/2015	< 0.93 U	0.7 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	49-50	10/2/2015	< 1 U	0.84 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
VAP-2 GW	15-16	10/5/2015	< 0.96 U	0.96 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	20-21	10/5/2015	< 0.93 U	0.52 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	25-26	10/5/2015	< 0.96 U	0.87 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31	10/5/2015	< 0.93 U	0.53 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	35-36 RE	10/5/2015	< 0.96 U H	0.72 J H	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 9.6 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H
	40-41 RE	10/5/2015	< 0.96 U H	0.96 H	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 9.6 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H
	40-41 (DUP-1) RE	10/5/2015	< 0.96 U H	1.2 H	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 9.6 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H
	45-46 RE	10/5/2015	< 0.96 U H	0.58 J H	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 9.6 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H
	49-50	10/5/2015	< 0.96 U	0.58 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
VAP-3-GW	15-16	10/6/2015	< 0.96 U	0.47 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	20-21	10/6/2015	< 0.96 U	0.68 J	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	25-26	10/6/2015	< 0.96 U	0.71 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	0.069 J
	30-31	10/6/2015	< 0.96 U	1.3	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	35-36	10/6/2015	< 0.93 U	0.9 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	40-41	10/6/2015	< 0.93 U	0.66 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	45-46	10/6/2015	< 0.93 U	0.56 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	49-50	10/6/2015	< 0.93 U	1.1 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
VAP-4-GW	15-16	10/6/2015	< 0.96 U	1.2 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	20-21	10/6/2015	< 1 U	1 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	25-26	10/6/2015	< 1 U	1.1 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	30-31	10/6/2015	< 0.96 U	1.2	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	35-36	10/7/2015	< 1 U	0.67 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	40-41	10/7/2015	< 0.96 U	0.61 J	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	45-46	10/7/2015	< 0.93 U	1.5	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	48-49	10/7/2015	< 0.93 U	0.94	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
VAP-5-GW	15-16	10/7/2015	< 1 U	0.72 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	20-21	10/7/2015	< 0.93 U	1.1	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	25-26	10/7/2015	< 0.96 U	0.6 J	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31	10/7/2015	< 0.96 U	0.53 J	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	35-36	10/7/2015	< 1 U	0.57 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	40-41	10/7/2015	< 1 U	0.71 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	45-46	10/7/2015	< 1 U	0.83 J	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--	--	--	--
	15-16 RE	10/8/2015	< 1 U H	0.71 J H	< 1 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 1 U H	< 10 U H	< 1 U H	< 0.2 U H	< 1 U H
	20-21	10/8/2015	< 0.93 U	0.67 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	20-21 RE	10/8/2015	< 0.96 U H	0.38 J H	< 0.96 U H	< 0.19 U H	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 9.6 U H	< 0.96 U H	< 0.19 U H	< 0.96 U H
	25-26	10/8/2015	< 0.96 U	0.81 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	25-26 RE	10/8/2015	< 0.93 U H	0.37 J H	< 0.93 U H	< 0.19 U H	< 0.19 U H	< 0.93 U H	< 0.93 U H	< 9.3 U H	< 0.93 U H	< 0.19 U H	< 0.93 U H
	30-31	10/8/2015	< 0.96 U	1.1 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31 RE	10/8/2015	< 0.93 U H	< 0.93 U H	< 0.93 U H	< 0.19 U H	< 0.19 U H	< 0.93 U H	< 0.93 U H	< 9.3 U H	< 0.93 U H	< 0.19 U H	< 0.93 U H
	30-31 (DUP-2)	10/8/2015	< 0.93 U	1.3 B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	30-35	10/8/2015	< 0.96 U	0.87 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	40-41	10/8/2015	< 1 U	0.84 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	45-46	10/8/2015	< 1 U	0.8 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	49-50	10/8/2015	< 1 U	0.86 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Dimethyl Phthalate	Di-n-butyl Phthalate	Di-n-octyl Phthalate	Fluoranthene	Fluorene	Hexachloro-benzene	Hexachloro-butadiene	Hexachlorocyclo-pentadiene	Hexachloro-ethane	Indeno[1,2,3-cd]-pyrene	Isophorone
Well/Sample Details													
VAP-7-GW	13-14	10/9/2015	< 0.96 U	0.63 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	15-16	10/9/2015	< 1 U	0.56 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	20-21	10/9/2015	< 0.93 U	0.74 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	25-26	10/9/2015	< 0.96 U	0.71 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31	10/9/2015	< 0.96 U	0.51 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31 (DUP-3) RE	10/9/2015	< 1 U H	< 1 U H	< 1 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 1 U H	< 10 U H	< 1 U H	< 0.2 U H	< 1 U H
	35-36 RE	10/9/2015	< 1.1 U H	0.62 J H B	< 1.1 U H	< 0.22 U H	< 0.22 U H	< 1.1 U H	< 1.1 U H	< 11 U H	< 1.1 U H	< 0.22 U H	< 1.1 U H
	43-44 RE	10/9/2015	< 1 U H	0.55 J H B	< 1 U H	< 0.2 U H	< 0.2 U H	< 1 U H	< 1 U H	< 10 U H	< 1 U H	< 0.2 U H	< 1 U H
	48-49 RE	10/9/2015	< 1.2 U H	< 1.2 U H	< 1.2 U H	< 0.24 U H	< 0.24 U H	< 1.2 U H	< 1.2 U H	< 12 U H	< 1.2 U H	< 0.24 U H	< 1.2 U H
VAP-8-GW	18-19 RE	10/8/2015	< 1.3 U H	0.72 J H B	< 1.3 U H	< 0.25 U H	< 0.25 U H	< 1.3 U H	< 1.3 U H	< 13 U H	< 1.3 U H	< 0.25 U H	< 1.3 U H
	20-21 RE	10/8/2015	< 1.3 U H	0.84 J H B	< 1.3 U H	< 0.26 U H	< 0.26 U H	< 1.3 U H	< 1.3 U H	< 13 U H	< 1.3 U H	< 0.26 U H	< 1.3 U H
	25-26	10/8/2015	< 0.96 U	0.65 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31	10/8/2015	< 0.96 U	1.2 B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	35-36	10/8/2015	< 1 U	1.2 B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	40-41	10/8/2015	< 1 U	0.71 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	45-46	10/8/2015	< 0.93 U	0.75 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	49-50	10/8/2015	< 0.96 U	0.59 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
VAP-9-GW	15-16	10/1/2015	< 0.96 U	0.56 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	20-21	10/1/2015	< 1 U	0.7 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	25-26	10/1/2015	< 0.96 U	0.6 J B	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	30-31	10/1/2015	< 1 U	0.75 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	35-36	10/1/2015	< 1 U	0.53 J B	< 1 U	< 0.2 U	< 0.2 U	< 1 U	< 1 U	< 10 U	< 1 U	< 0.2 U	< 1 U
	40-41	10/1/2015	< 0.89 U	0.48 J B	< 0.89 U	< 0.18 U	< 0.18 U	< 0.89 U	< 0.89 U	< 8.9 U	< 0.89 U	< 0.18 U	< 0.89 U
	45-46	10/1/2015	< 0.93 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	49-50	10/1/2015	< 0.93 U	0.58 J B	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
VAP-10-GW	16-17	10/20/2015	< 0.93 U	< 0.93 U	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	20-21	10/20/2015	< 0.93 U	0.93	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	25-26	10/20/2015	< 0.93 U	0.69 J	< 0.93 U	0.35	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	0.2	< 0.93 U
	30-31	10/20/2015	< 0.93 U	0.85 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	0.22 J
	35-36	10/20/2015	< 0.89 U	0.76 J	< 0.89 U	< 0.18 U	< 0.18 U	< 0.89 U	< 0.89 U	< 8.9 U	< 0.89 U	< 0.18 U	< 0.89 U
	40-41	10/20/2015	< 0.93 U	0.65 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U
	45-46	10/20/2015	< 0.96 U	1.2	< 0.96 U	< 0.19 U	< 0.19 U	< 0.96 U	< 0.96 U	< 9.6 U	< 0.96 U	< 0.19 U	< 0.96 U
	49-50	10/20/2015	< 0.93 U	0.7 J	< 0.93 U	< 0.19 U	< 0.19 U	< 0.93 U	< 0.93 U	< 9.3 U	< 0.93 U	< 0.19 U	< 0.93 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits.
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8270C; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
RE	Sample was re-analyzed.
SVOC	Semi-volatile organic compound.
U	Indicates the analyte was analyzed for but not detected.

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Naphthalene	Nitrobenzene	N-Nitrosodi-n-propylamine	N-Nitrosodi-phenylamine	Penta-chlorophenol	Phenanthrene	Phenol	Pyrene
Well/Sample Details										
VAP-1-GW	12-13	10/2/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	15-16	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	20-21	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	25-26	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	30-31	10/2/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	35-36	10/2/2015	< 0.19 U	< 0.94 U	< 0.94 U	< 0.94 U	< 38 U	< 0.19 U	< 0.94 U	< 0.19 U
	40-41	10/2/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	45-46	10/2/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	49-50	10/2/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
VAP-2 GW	15-16	10/5/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	20-21	10/5/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	25-26	10/5/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	30-31	10/5/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	35-36 RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 38 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H
	40-41 RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 38 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H
	40-41 (DUP-1) RE	10/5/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 38 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H
	45-46 RE	10/5/2015	0.22 H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 38 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H
	49-50	10/5/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
VAP-3-GW	15-16	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	20-21	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	25-26	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	30-31	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	35-36	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	40-41	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	45-46	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	49-50	10/6/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
VAP-4-GW	15-16	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	20-21	10/6/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	25-26	10/6/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	30-31	10/6/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	35-36	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	12	< 0.2 U
	40-41	10/7/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	45-46	10/7/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	0.33	< 0.93 U	< 0.19 U
	48-49	10/7/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
VAP-5-GW	15-16	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	6.1	< 0.2 U
	20-21	10/7/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	25-26	10/7/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	30-31	10/7/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	35-36	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	40-41	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	45-46	10/7/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--
	15-16 RE	10/8/2015	< 0.2 U H	< 1 U H	< 1 U H	< 1 U H	< 40 U H	< 0.2 U H	< 1 U H	< 0.2 U H
	20-21	10/8/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	20-21 RE	10/8/2015	< 0.19 U H	< 0.96 U H	< 0.96 U H	< 0.96 U H	< 38 U H	< 0.19 U H	< 0.96 U H	< 0.19 U H
	25-26	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	25-26 RE	10/8/2015	< 0.19 U H	< 0.93 U H	< 0.93 U H	< 0.93 U H	< 37 U H	< 0.19 U H	< 0.93 U H	< 0.19 U H
	30-31	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	30-31 RE	10/8/2015	< 0.19 U H	< 0.93 U H	< 0.93 U H	< 0.93 U H	< 37 U H	< 0.19 U H	< 0.93 U H	< 0.19 U H
	30-31 (DUP-2)	10/8/2015	0.21	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U *	< 0.19 U
	30-35	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	40-41	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	45-46	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	49-50	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U *	< 0.2 U

Table 6
Summary of Groundwater SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Naphthalene	Nitrobenzene	N-Nitrosodi-n-propylamine	N-Nitrosodi-phenylamine	Penta-chlorophenol	Phenanthrene	Phenol	Pyrene
Well/Sample Details										
VAP-7-GW	13-14	10/9/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U *	< 0.19 U
	15-16	10/9/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U *	< 0.2 U
	20-21	10/9/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U *	< 0.19 U
	25-26	10/9/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U *	< 0.19 U
	30-31	10/9/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U *	< 0.19 U
	30-31 (DUP-3) RE	10/9/2015	< 0.2 U H	< 1 U H	< 1 U H	< 1 U H	< 40 U H	< 0.2 U H	< 1 U H	< 0.2 U H
	35-36 RE	10/9/2015	< 0.22 U H	< 1.1 U H	< 1.1 U H	< 1.1 U H	< 43 U H	< 0.22 U H	< 1.1 U H	< 0.22 U H
	43-44 RE	10/9/2015	< 0.2 U H	< 1 U H	< 1 U H	< 1 U H	< 40 U H	< 0.2 U H	< 1 U H	< 0.2 U H
	48-49 RE	10/9/2015	< 0.24 U H	< 1.2 U H	< 1.2 U H	< 1.2 U H	< 48 U H	< 0.24 U H	< 1.2 U H	< 0.24 U H
VAP-8-GW	18-19 RE	10/8/2015	< 0.25 U H	< 1.3 U H	< 1.3 U H	< 1.3 U H	< 50 U H	< 0.25 U H	< 1.3 U H	< 0.25 U H
	20-21 RE	10/8/2015	< 0.26 U H	< 1.3 U H	< 1.3 U H	< 1.3 U H	< 53 U H	< 0.26 U H	< 1.3 U H	< 0.26 U H
	25-26	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U *	< 0.19 U
	30-31	10/8/2015	0.21	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U *	< 0.19 U
	35-36	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U *	< 0.2 U
	40-41	10/8/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U *	< 0.2 U
	45-46	10/8/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U *	< 0.19 U
	49-50	10/8/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U *	< 0.19 U
VAP-9-GW	15-16	10/1/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	20-21	10/1/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	25-26	10/1/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	30-31	10/1/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 41 U	< 0.2 U	< 1 U	< 0.2 U
	35-36	10/1/2015	< 0.2 U	< 1 U	< 1 U	< 1 U	< 40 U	< 0.2 U	< 1 U	< 0.2 U
	40-41	10/1/2015	< 0.18 U	< 0.89 U	< 0.89 U	< 0.89 U	< 36 U	< 0.18 U	< 0.89 U	< 0.18 U
	45-46	10/1/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	49-50	10/1/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
VAP-10-GW	16-17	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	20-21	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	25-26	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	0.27	< 0.93 U	0.37
	30-31	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	35-36	10/20/2015	0.22	< 0.89 U	< 0.89 U	< 0.89 U	< 36 U	< 0.18 U	< 0.89 U	< 0.18 U
	40-41	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U
	45-46	10/20/2015	< 0.19 U	< 0.96 U	< 0.96 U	< 0.96 U	< 38 U	< 0.19 U	< 0.96 U	< 0.19 U
	49-50	10/20/2015	< 0.19 U	< 0.93 U	< 0.93 U	< 0.93 U	< 37 U	< 0.19 U	< 0.93 U	< 0.19 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits.
‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 8270C; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

Acronyms:

µg/L	Micrograms per liter.
RE	Sample was re-analyzed.
SVOC	Semi-volatile organic compound.
U	Indicates the analyte was analyzed for but not detected.

Table 7
Summary of Groundwater Metals Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Arsenic	Barium	Cadmium	Chromium	Chromium VI	Lead	Selenium	Silver	Mercury
Well/Sample Details											
VAP-1-GW	12-13	10/2/2015	60	370 B	1 J	120	< 10 U	42	< 5 U	< 5 U	0.11 J
	15-16	10/2/2015	< 10 U	34 J B	< 2 U	14	< 10 U	3.5	< 5 U	< 5 U	< 0.2 U
	20-21	10/2/2015	< 10 U	50 J B	0.14 J	18	< 10 U	4.3	< 5 U	< 5 U	< 0.2 U
	25-26	10/2/2015	30	520 B	1.4 J	200	< 10 U	82	7.7	< 5 U	< 0.2 U
	30-31	10/2/2015	12	830 B	0.71 J	280	< 10 U	45	< 5 U	< 5 U	< 0.2 U
	35-36	10/2/2015	24	360 B	0.67 J	320	< 10 U	81	< 5 U	< 5 U	< 0.2 U
	40-41	10/2/2015	38	630 B	1.2 J	430	< 10 U	62	4.9 J	< 5 U	< 0.2 U
	45-46	10/2/2015	7.2 J	660 B	1 J	210	< 10 U	75	4.9 J	< 5 U	< 0.2 U
	49-50	10/2/2015	12	490 B	0.89 J	200	< 10 U	31	< 5 U	< 5 U	< 0.2 U
VAP-2 GW	15-16	10/5/2015	7.9 J	180 J	0.2 J	38 B	16	10	4.5 J	< 5 U	< 0.2 U
	20-21	10/5/2015	5.5 J	83 J	< 2 U	12 B	< 10 U	5.1	< 5 U	< 5 U	< 0.2 U
	25-26	10/5/2015	61	1300	1.2 J	460 B	< 10 U	150	8.7	< 5 U	1.8
	30-31	10/5/2015	5.4 J	180 J	0.14 J	21 B	< 10 U	9	< 5 U	< 5 U	< 0.2 U
	35-36	10/5/2015	5.7 J	180 J	0.3 J	51 B	< 10 U	15	< 5 U	< 5 U	< 0.2 U F1
	40-41	10/5/2015	120	1800	5.5	660 B	< 10 U	230	67	< 5 U	1.2
	40-41 (DUP-1)	10/5/2015	41	1100	2.4	200 B	< 10 U	85	22	< 5 U	0.32
	45-46	10/5/2015	22	450	0.8 J	120 B	< 10 U	44	< 5 U	< 5 U	0.11 J
	49-50	10/5/2015	< 10 U	36 J	< 2 U	1.2 J B	< 10 U	< 3 U	< 5 U	< 5 U	< 0.2 U
VAP-3-GW	15-16	10/6/2015	10	230	0.62 J	35 B	< 10 U	11	< 5 U	< 5 U	< 0.2 U
	20-21	10/6/2015	13	210	0.23 J	73 B	< 10 U	9.8	< 5 U	< 5 U	< 0.2 U
	25-26	10/6/2015	16	120 J	0.41 J	29 B	< 10 U	13	< 5 U	< 5 U	< 0.2 U
	30-31	10/6/2015	27	2300	1.3 J	870 B	< 10 U	260	19	< 5 U L	1
	35-36	10/6/2015	8.6 J	380	0.31 J	140 B	< 10 U	35	< 5 U	< 5 U	< 0.2 U
	40-41	10/6/2015	17	1100	1.2 J	470 B	< 10 U	150	9.5	< 5 U	0.17 J
	45-46	10/6/2015	8.1 J	410	2.7	140 B	< 10 U	39	21	< 5 U	0.095 J
	49-50	10/6/2015	23	380	0.54 J	140 B	< 10 U	34	< 5 U	< 5 U	0.16 J
VAP-4-GW	15-16	10/6/2015	130	980	1.9 J	260 B	< 10 U	57	4.1 J	< 5 U	0.22
	20-21	10/6/2015	19	410	0.24 J	130 B	< 10 U	32	< 5 U	< 5 U	< 0.2 U
	25-26	10/6/2015	19	260	0.21 J	100 B	< 10 U	34	< 5 U	< 5 U	0.38
	30-31	10/6/2015	96	1300 B	1.6 J	550	< 10 U	280	< 5 U	< 5 U L	2.3
	35-36	10/7/2015	66	2400 B	3.9	670	< 10 U	230	11	< 5 U L	1
	40-41	10/7/2015	15	1400 B	1.4 J	380	< 10 U	130	7	< 5 U	< 0.2 U
	45-46	10/7/2015	15	1500 B	2.1	690	< 10 U	190	11	< 5 U	0.15 J
	48-49	10/7/2015	56	2400 B	4.1	2000	< 10 U	220	12	< 5 U L	0.54
VAP-5-GW	15-16	10/7/2015	14	440 B	1 J	100	< 10 U	37	< 5 U	< 5 U	1
	20-21	10/7/2015	35	140 J B	0.26 J	40	< 10 U	11	< 5 U	< 5 U	0.2
	25-26	10/7/2015	9.2 J	240 B	0.18 J	55	< 10 U	23	< 5 U	< 5 U	0.11 J
	30-31	10/7/2015	7.8 J	380 B	3.6	210	< 10 U	96	29	< 5 U	0.28
	35-36	10/7/2015	12	280 B	0.48 J	48	< 10 U	30	< 5 U	< 5 U	0.15 J
	40-41	10/7/2015	14	190 J B	0.66 J	33	< 10 U	18	< 5 U	< 5 U	< 0.2 U
	45-46	10/7/2015	16	220 B	0.68 J	54	< 10 U	28	< 5 U	< 5 U	< 0.2 U
	49-50	10/7/2015	--	--	--	--	--	--	--	--	--
VAP-6-GW	12-13	10/8/2015	--	--	--	--	--	--	--	--	--
	15-16	10/8/2015	51	960 B	0.93 J	250	< 10 U	79	< 5 U	< 5 U	0.24
	20-21	10/8/2015	< 10 U	21 J B	< 2 U	2.4 J	< 10 U	< 3 U	< 5 U	< 5 U	< 0.2 U
	25-26	10/8/2015	34	590 B	0.55 J	260	< 10 U	90	< 5 U	< 5 U	2.1
	30-31	10/8/2015	12	210 B	0.19 J	78	< 10 U	29	< 5 U	< 5 U	< 0.2 U
	30-31 (DUP-2)	10/8/2015	12	250 B	0.43 J	92	< 10 U	31	< 5 U	< 5 U	< 0.2 U
	30-35	10/8/2015	< 10 U	69 J B	< 2 U	5.1	< 10 U	< 3 U	< 5 U	< 5 U	< 0.2 U
	40-41	10/8/2015	5.3 J	180 J B	0.19 J	53	< 10 U	13	< 5 U	< 5 U	0.1 J
	45-46	10/8/2015	77	1400 B	1.2 J	740	< 10 U	180	54	< 5 U	3
	49-50	10/8/2015	9.3 J	340 B	1 J	160	< 10 U	92	42	< 5 U	0.21
VAP-7-GW	13-14	10/9/2015	18	350 B	0.32 J	130	< 10 U	33	8.3	< 5 U	0.11 J
	15-16	10/9/2015	18	320 B	0.5 J	120	< 10 U	33	< 5 U	< 5 U	0.14 J
	20-21	10/9/2015	6.4 J	190 J B	< 2 U	43	< 10 U	11	< 5 U	< 5 U	< 0.2 U
	25-26	10/9/2015	12	390 B	0.44 J	140	< 10 U	47	< 5 U	< 5 U	0.093 J
	30-31	10/9/2015	9.4 J	280 B	0.4 J	93	< 10 U	38	4.9 J	< 5 U	0.099 J
	30-31 (DUP-3)	10/9/2015	11	310 B	0.4 J	110	< 10 U	46	4 J	< 5 U	0.19 J
	35-36	10/9/2015	35	790 B	1.5 J	380	< 10 U	390	51	< 5 U	1.2
	43-44	10/9/2015	46	330 B	0.73 J	180	< 10 U	39	< 5 U	< 5 U	0.17 J
	48-49	10/9/2015	28	250 B	0.31 J	86	18	27	< 5 U	< 5 U	0.18 J
VAP-8-GW	18-19	10/8/2015	26	680 B	0.7 J	200	< 10 U	70	< 5 U	< 5 U	0.31
	20-21	10/8/2015	120	570 B	0.84 J	180	< 10 U	77	< 5 U	< 5 U	< 0.2 U
	25-26	10/8/2015	14	920 B	0.42 J	260	< 10 U	100	4.5 J	< 5 U	0.21
	30-31	10/8/2015	10	520 B	0.2 J	190	< 10 U	47	< 5 U	< 5 U	0.17 J
	35-36	10/8/2015	17	820 B	0.41 J	480	< 10 U	280	13	< 5 U L	0.35
	40-41	10/8/2015	69	1100 B	12	500	< 10 U	470	190	< 5 U	0.91
	45-46	10/8/2015	84	440 B	2.5	180	< 10 U	80	14	< 5 U	0.22
	49-50	10/8/2015	4 J	250 B	0.17 J	39	< 10 U	13	< 5 U	< 5 U	< 0.2 U
VAP-9-GW	15-16	10/1/2015	43	280 B	0.77 J	130	< 10 U	31	< 5 U	< 5 U	0.28
	20-21	10/1/2015	48	1600 B	4.7	680	< 10 U	280	26	< 5 U	1.6
	25-26	10/1/2015	19	900 B	1.4 J	330	< 10 U	82	< 5 U	< 5 U	0.12 J
	30-31	10/1/2015	9.8 J	420 B	0.59 J	120	< 10 U	56	12	< 5 U	0.26
	35-36	10/1/2015	< 10 U	120 J B	0.21 J	1.3 J	13	< 3 U	< 5 U	< 5 U	< 0.2 U
	40-41	10/1/2015	8.8 J	540 B	0.69 J	180	< 10 U	75	< 5 U	< 5 U	< 0.2 U
	45-46	10/1/2015	13	510 B	1.7 J	150	< 10 U	42	< 5 U	< 5 U	0.14 J
	49-50	10/1/2015	25	590 B	2	270	< 10 U	71	6.9	< 5 U	< 0.2 U
VAP-10-GW	16-17	10/20/2015	24	460 B	0.77 J	130	< 10 U	34	< 5 U	< 5 U	0.17 J
	20-21	10/20/2015	4.2 J	43 J B	0.18 J	5	< 10 U	< 3 U	< 5 U	< 5 U	< 0.2 U
	20-25	10/20/2015	49	490 B	1.2 J	410	< 10 U	76	< 5 U	< 5 U	0.43
	30-31	10/20/2015	16	720 B	1 J	400	< 10 U	64	4.4 J	< 5 U L	0.82
	35-36	10/20/2015	3.7 J	330 B	0.57 J	96	< 10 U	43	4.4 J	< 5 U	< 0.2 U
	40-41	10/20/2015	--	--	--	--	--	--	--	--	--
	45-46	10/20/2015	36	750 B	1.6 J	570	< 10 U	73	4.8 J	< 5 U	0.15 J
	49-50	10/20/2015	--	--	--	--	--	--	--	--	--

Notes:

‡	Groundwater samples collected by vertical aquifer profile method. Analyzed by Method 6010B, Method SM 3500-Cr B for Cr VI, and Method 7470A for Mercury; presented in µg/L.
--	Insufficient sample volume to analyze.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronym:

µg/L Micrograms per liter.

Table 8
Summary of Quality Control/Quality Assurance VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	TB-01 (100115)	TB-01 (101915)	TB-02 (100515)	TB-03 (100715)	TB-04 (100715)	TB-05(100815)	TB-06(100815)	TB-07(100915)
Sample Date	10/1/2015	10/19/2015	10/5/2015	10/7/2015	10/7/2015	10/8/2015	10/8/2015	10/9/2015
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloro-1,2,2-trifluoroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-Chloropropane	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dichlorobenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Butanone (MEK)	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Hexanone	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Methyl-2-pentanone (MIBK)	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acetone	3.2 J	3 J	1 J	2.2 J	3.9 J	2.1 J B	< 10 U	3.3 J
Benzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon disulfide	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.63 J	< 1 U
Carbon tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorobenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorodibromomethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorobromomethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylene Dibromide	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Isopropylbenzene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl acetate	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methyl tert-butyl ether	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylcyclohexane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene Chloride	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Styrene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Toluene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Xylenes, Total	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U

Notes:

‡ Analyzed by Method 8260B; presented in µg/L.

B Compound was found in the blank and sample.

J Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.

U Indicates the analyte was analyzed for but not detected.

Acronym:

µg/L Micrograms per liter.

Table 9
Summary of Soil VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,4-Trichlorobenzene	1,2-Dibromo-3-chloropropane
Well/Sample Details										
VAP-1-GW	1-2	10/2/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.9 U
VAP-2 GW	2-4	10/5/2015	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 9.8 U
VAP-3-GW	1-2	10/5/2015	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 8.4 U
VAP-4-GW	6-8	10/6/2015	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 8.7 U
VAP-5-GW	4-6	10/7/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.9 U
VAP-6-GW	2-4	10/8/2015	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 9 U
VAP-7-GW	2-4	10/9/2015	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 9 U
VAP-8-GW	1-2	10/8/2015	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 9.2 U
VAP-9-GW	2-4	10/1/2015	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 8.5 U
	2-4 (DUP-01)	10/1/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.8 U
VAP-10-GW	0-2	10/19/2015	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 12 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Soil samples analyzed by Method 8260B; presented in µg/kg.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
VOC	Volatile organic compounds.

Table 9
Summary of Soil VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Butanone (MEK)	2-Hexanone
Well/Sample Details									
VAP-1-GW	1-2	10/2/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	2.6 J B	< 18 U
VAP-2 GW	2-4	10/5/2015	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	2 J B	< 20 U
VAP-3-GW	1-2	10/5/2015	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	1.4 J B	< 17 U
VAP-4-GW	6-8	10/6/2015	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	1.3 J B	< 17 U
VAP-5-GW	4-6	10/7/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	1.1 J B	< 18 U
VAP-6-GW	2-4	10/8/2015	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	1.8 J B	< 18 U
VAP-7-GW	2-4	10/9/2015	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	0.78 J B	< 18 U
VAP-8-GW	1-2	10/8/2015	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	3.6 J B	< 18 U
VAP-9-GW	2-4	10/1/2015	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	4.9 J B	< 17 U
	2-4 (DUP-01)	10/1/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	3.3 J B	< 18 U
VAP-10-GW	0-2	10/19/2015	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	16 J B	< 24 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Soil samples analyzed by Method 8260B; presented in µg/kg.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
VOC	Volatile organic compounds.

Table 9
Summary of Soil VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	4-Methyl-2-pentanone (MIBK)	Acetone	Benzene	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride
Well/Sample Details									
VAP-1-GW	1-2	10/2/2015	< 18 U	40	< 4.4 U	< 4.4 U	< 4.4 U	0.57 J	< 4.4 U
VAP-2 GW	2-4	10/5/2015	< 20 U	10 J B *	0.57 J	< 4.9 U	< 4.9 U	0.6 J	< 4.9 U
VAP-3-GW	1-2	10/5/2015	< 17 U	7.9 J B *	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U
VAP-4-GW	6-8	10/6/2015	< 17 U	9.3 J B *	< 4.3 U	< 4.3 U	< 4.3 U	0.52 J	< 4.3 U
VAP-5-GW	4-6	10/7/2015	< 18 U	< 18 U *	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U
VAP-6-GW	2-4	10/8/2015	< 18 U	5.7 J B *	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U
VAP-7-GW	2-4	10/9/2015	< 18 U	< 18 U *	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U
VAP-8-GW	1-2	10/8/2015	< 18 U	22 B *	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U
VAP-9-GW	2-4	10/1/2015	< 17 U	45	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U
	2-4 (DUP-01)	10/1/2015	< 18 U	31	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U
VAP-10-GW	0-2	10/19/2015	< 24 U	210 B	0.37 J	< 6 U	< 6 U	< 6 U	< 6 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Soil samples analyzed by Method 8260B; presented in µg/kg.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
VOC	Volatile organic compounds.

Table 9
Summary of Soil VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Chlorobenzene	Chlorodi-bromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene
Well/Sample Details									
VAP-1-GW	1-2	10/2/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U
VAP-2 GW	2-4	10/5/2015	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U
VAP-3-GW	1-2	10/5/2015	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U
VAP-4-GW	6-8	10/6/2015	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U
VAP-5-GW	4-6	10/7/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U
VAP-6-GW	2-4	10/8/2015	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U
VAP-7-GW	2-4	10/9/2015	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U
VAP-8-GW	1-2	10/8/2015	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U
VAP-9-GW	2-4	10/1/2015	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U
	2-4 (DUP-01)	10/1/2015	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U
VAP-10-GW	0-2	10/19/2015	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Soil samples analyzed by Method 8260B; presented in µg/kg.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
VOC	Volatile organic compounds.

Table 9
Summary of Soil VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Cyclohexane	Dichloro-bromomethane	Dichloro-difluoromethane	Ethylbenzene	Ethylene Dibromide	Isopropyl-benzene	Methyl Acetate	Methyl tert-butyl ether
Well/Sample Details										
VAP-1-GW	1-2	10/2/2015	< 8.9 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.9 U	< 4.4 U
VAP-2 GW	2-4	10/5/2015	< 9.8 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 9.8 U *	< 4.9 U
VAP-3-GW	1-2	10/5/2015	< 8.4 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 8.4 U *	< 4.2 U
VAP-4-GW	6-8	10/6/2015	< 8.7 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 8.7 U *	< 4.3 U
VAP-5-GW	4-6	10/7/2015	< 8.9 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.9 U *	< 4.4 U
VAP-6-GW	2-4	10/8/2015	< 9 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 9 U *	< 4.5 U
VAP-7-GW	2-4	10/9/2015	< 9 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 9 U *	< 4.5 U
VAP-8-GW	1-2	10/8/2015	< 9.2 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 9.2 U *	< 4.6 U
VAP-9-GW	2-4	10/1/2015	< 8.5 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 8.5 U	< 4.2 U
	2-4 (DUP-01)	10/1/2015	< 8.8 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.8 U	< 4.4 U
VAP-10-GW	0-2	10/19/2015	< 12 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	15	< 6 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Soil samples analyzed by Method 8260B; presented in µg/kg.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
VOC	Volatile organic compounds.

Table 9
Summary of Soil VOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Methyl-cyclohexane	Methylene Chloride	Styrene	Tetra-chloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride	Total Xylenes
Well/Sample Details													
VAP-1-GW	1-2	10/2/2015	< 8.9 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.9 U
VAP-2 GW	2-4	10/5/2015	< 9.8 U	< 4.9 U	< 4.9 U	< 4.9 U	0.49 J	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 4.9 U	< 9.8 U
VAP-3-GW	1-2	10/5/2015	< 8.4 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 8.4 U
VAP-4-GW	6-8	10/6/2015	< 8.7 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 4.3 U	< 8.7 U
VAP-5-GW	4-6	10/7/2015	< 8.9 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.9 U
VAP-6-GW	2-4	10/8/2015	< 9 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 9 U
VAP-7-GW	2-4	10/9/2015	< 9 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 4.5 U	< 9 U
VAP-8-GW	1-2	10/8/2015	< 9.2 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 4.6 U	< 9.2 U
VAP-9-GW	2-4	10/1/2015	< 8.5 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 4.2 U	< 8.5 U
	2-4 (DUP-01)	10/1/2015	< 8.8 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 4.4 U	< 8.8 U
VAP-10-GW	0-2	10/19/2015	< 12 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 12 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
‡	Soil samples analyzed by Method 8260B; presented in µg/kg.
B	Compound was found in the blank and sample.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
VOC	Volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	1,1'-Biphenyl	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichloro-phenol	2,4-Dimethyl-phenol	2,4-Dinitro-phenol	2,4-Dinitro-toluene	2,6-Dinitro-toluene	2-Chloro-naphthalene	2-Chloro-phenol
Well/Sample Details												
VAP-1-GW	1-2	10/2/2015	< 60 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U	< 240 U	< 60 U	< 60 U
VAP-2 GW	2-4	10/5/2015	< 64 U	< 190 U	< 190 U	< 190 U	< 190 U	< 420 U	< 260 U	< 260 U	< 64 U	< 64 U
VAP-3-GW	1-2	10/5/2015	< 61 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U F2	< 240 U	< 61 U	< 61 U
VAP-4-GW	6-8	10/6/2015	< 61 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U	< 240 U	< 61 U	< 61 U
VAP-5-GW	4-6	10/7/2015	< 63 U	< 190 U	< 190 U	< 190 U	< 190 U	< 410 U	< 250 U	< 250 U	< 63 U	< 63 U
VAP-6-GW	2-4	10/8/2015	< 62 U	< 190 U	< 190 U	< 190 U	< 190 U	< 410 U	< 250 U	< 250 U	< 62 U	< 62 U
VAP-7-GW	2-4	10/9/2015	< 61 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U	< 240 U	< 61 U	< 61 U
VAP-8-GW	1-2	10/8/2015	< 61 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U	< 240 U	< 61 U	< 61 U
VAP-9-GW	2-4	10/1/2015	< 60 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U	< 240 U	< 60 U	< 60 U
	2-4 (DUP-01)	10/1/2015	< 60 U	< 180 U	< 180 U	< 180 U	< 180 U	< 400 U	< 240 U	< 240 U	< 60 U	< 60 U
VAP-10-GW	0-2	10/19/2015	< 55 U	< 170 U	< 170 U	< 170 U	< 170 U	< 360 U	< 220 U	< 220 U	< 55 U	< 55 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	2-Methyl-naphthalene	2-Methyl-phenol	2-Nitroaniline	2-Nitrophenol	3 & 4 Methyl-phenol	3,3'-Dichloro-benzidine	3-Nitroaniline	4,6-Dinitro-2-methylphenol	4-Bromophenyl Phenyl Ether	4-Chloro-3-methylphenol
Well/Sample Details												
VAP-1-GW	1-2	10/2/2015	< 8 U	< 240 U	< 240 U	< 60 U	< 480 U	< 120 U	< 240 U	< 180 U	< 60 U	< 180 U
VAP-2 GW	2-4	10/5/2015	< 8.6 U	< 260 U	< 260 U	< 64 U	< 520 U	< 130 U	< 260 U	< 190 U	< 64 U	< 190 U
VAP-3-GW	1-2	10/5/2015	< 8.1 U	< 240 U	< 240 U	< 61 U F2	< 490 U	< 120 U	< 240 U	< 180 U F1 F2	< 61 U	< 180 U
VAP-4-GW	6-8	10/6/2015	< 8.1 U	< 240 U	< 240 U	< 61 U	< 490 U	< 120 U	< 240 U	< 180 U	< 61 U	< 180 U
VAP-5-GW	4-6	10/7/2015	< 8.3 U	< 250 U	< 250 U	< 63 U	< 500 U	< 130 U	< 250 U	< 190 U	< 63 U	< 190 U
VAP-6-GW	2-4	10/8/2015	< 8.3 U	< 250 U	< 250 U	< 62 U	< 500 U	< 120 U	< 250 U	< 190 U	< 62 U	< 190 U
VAP-7-GW	2-4	10/9/2015	< 8.1 U	< 240 U	< 240 U	< 61 U	< 490 U	< 120 U	< 240 U	< 180 U	< 61 U	< 180 U
VAP-8-GW	1-2	10/8/2015	< 8.2 U	< 240 U	< 240 U	< 61 U	< 490 U	< 120 U	< 240 U	< 180 U	< 61 U	< 180 U
VAP-9-GW	2-4	10/1/2015	< 8 U	< 240 U	< 240 U	< 60 U	< 480 U	< 120 U	< 240 U	< 180 U	< 60 U	< 180 U
	2-4 (DUP-01)	10/1/2015	< 8 U	< 240 U	< 240 U	< 60 U	< 480 U	< 120 U	< 240 U	< 180 U	< 60 U	< 180 U
VAP-10-GW	0-2	10/19/2015	4.8 J	< 220 U	< 220 U	< 55 U	< 440 U	< 110 U	< 220 U	< 170 U	< 55 U	< 170 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	4-Chloro-aniline	4-Chlorophenyl Phenyl Ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Atrazine	Benzaldehyde
Well/Sample Details												
VAP-1-GW	1-2	10/2/2015	< 180 U	< 60 U	< 240 U	< 400 U	< 8 U	< 8 U	< 120 U	< 8 U	< 240 U	< 120 U
VAP-2 GW	2-4	10/5/2015	< 190 U	< 64 U	< 260 U	< 420 U	< 8.6 U	< 8.6 U	< 130 U	< 8.6 U	< 260 U	< 130 U
VAP-3-GW	1-2	10/5/2015	< 180 U	< 61 U	< 240 U	< 400 U	< 8.1 U	< 8.1 U	< 120 U	< 8.1 U	< 240 U	< 120 U
VAP-4-GW	6-8	10/6/2015	< 180 U	< 61 U	< 240 U	< 400 U	< 8.1 U	< 8.1 U	< 120 U	< 8.1 U	< 240 U	< 120 U
VAP-5-GW	4-6	10/7/2015	< 190 U	< 63 U	< 250 U	< 410 U	< 8.3 U	< 8.3 U	< 130 U	< 8.3 U	< 250 U	< 130 U
VAP-6-GW	2-4	10/8/2015	< 190 U	< 62 U	< 250 U	< 410 U	< 8.3 U	< 8.3 U	< 120 U	< 8.3 U	< 250 U	< 120 U
VAP-7-GW	2-4	10/9/2015	< 180 U	< 61 U	< 240 U	< 400 U	< 8.1 U	< 8.1 U	< 120 U	< 8.1 U	< 240 U	< 120 U
VAP-8-GW	1-2	10/8/2015	< 180 U	< 61 U	< 240 U	< 400 U	< 8.2 U	< 8.2 U	< 120 U	< 8.2 U	< 240 U	< 120 U
VAP-9-GW	2-4	10/1/2015	< 180 U	< 60 U	< 240 U	< 400 U	< 8 U	< 8 U	< 120 U	< 8 U	< 240 U	< 120 U
	2-4 (DUP-01)	10/1/2015	< 180 U	< 60 U	< 240 U	< 400 U	< 8 U	< 8 U	< 120 U	< 8 U	< 240 U	< 120 U
VAP-10-GW	0-2	10/19/2015	< 170 U	< 55 U	< 220 U	< 360 U	< 7.3 U	< 7.3 U	< 110 U	< 7.3 U	< 220 U	< 110 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Benzo[a] anthracene	Benzo[a] pyrene	Benzo[b] fluoranthene	Benzo[g,h,i] perylene	Benzo[k] fluoranthene	bis (2-chloro-isopropyl) ether	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-ethylhexyl) phthalate	Butyl Benzyl Phthalate
Well/Sample Details												
VAP-1-GW	1-2	10/2/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 120 U	< 120 U	< 120 U	36 J	< 84 U
VAP-2 GW	2-4	10/5/2015	< 8.6 U	< 8.6 U	< 8.6 U	< 8.6 U	< 8.6 U	< 130 U	< 130 U	< 130 U	25 J	< 90 U
VAP-3-GW	1-2	10/5/2015	< 8.1 U	< 8.1 U	< 8.1 U	< 8.1 U	< 8.1 U	< 120 U	< 120 U	< 120 U	25 J	< 85 U
VAP-4-GW	6-8	10/6/2015	< 8.1 U	< 8.1 U	< 8.1 U	< 8.1 U	< 8.1 U	< 120 U	< 120 U	< 120 U	27 J	< 85 U
VAP-5-GW	4-6	10/7/2015	< 8.3 U	< 8.3 U	< 8.3 U	< 8.3 U	< 8.3 U	< 130 U	< 130 U	< 130 U	< 88 U	< 88 U
VAP-6-GW	2-4	10/8/2015	< 8.3 U	< 8.3 U	< 8.3 U	< 8.3 U	< 8.3 U	< 120 U	< 120 U	< 120 U	26 J	< 87 U
VAP-7-GW	2-4	10/9/2015	< 8.1 U	< 8.1 U	< 8.1 U	< 8.1 U	< 8.1 U	< 120 U	< 120 U	< 120 U	< 85 U	< 85 U
VAP-8-GW	1-2	10/8/2015	< 8.2 U	< 8.2 U	< 8.2 U	< 8.2 U	< 8.2 U	< 120 U	< 120 U	< 120 U	< 86 U	< 86 U
VAP-9-GW	2-4	10/1/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 120 U	< 120 U	< 120 U	< 84 U	< 84 U
	2-4 (DUP-01)	10/1/2015	< 8 U	< 8 U	< 8 U	< 8 U	< 8 U	< 120 U	< 120 U	< 120 U	26 J	< 84 U
VAP-10-GW	0-2	10/19/2015	< 7.3 U	< 7.3 U	< 7.3 U	< 7.3 U	< 7.3 U	< 110 U	< 110 U	< 110 U	35 J	< 77 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Caprolactam	Carbazole	Chrysene	Dibenz(a,h) anthracene	Dibenzofuran	Diethyl Phthalate	Dimethyl Phthalate	Di-n-butyl Phthalate	Di-n-octyl Phthalate	Fluoranthene
Well/Sample Details												
VAP-1-GW	1-2	10/2/2015	52 J	< 60 U	< 8 U	< 8 U	< 60 U	< 84 U	< 84 U	< 84 U	< 84 U	< 8 U
VAP-2 GW	2-4	10/5/2015	< 420 U	< 64 U	< 8.6 U	< 8.6 U	< 64 U	< 90 U	< 90 U	26 J B	< 90 U	< 8.6 U
VAP-3-GW	1-2	10/5/2015	< 400 U	< 61 U	< 8.1 U	< 8.1 U	< 61 U	< 85 U	< 85 U	< 85 U	< 85 U F1 F2	< 8.1 U
VAP-4-GW	6-8	10/6/2015	< 400 U	< 61 U	< 8.1 U	< 8.1 U	< 61 U	< 85 U	< 85 U	27 J B	< 85 U	< 8.1 U
VAP-5-GW	4-6	10/7/2015	< 410 U	< 63 U	< 8.3 U	< 8.3 U	< 63 U	< 88 U	< 88 U	< 88 U	< 88 U	< 8.3 U
VAP-6-GW	2-4	10/8/2015	< 410 U	< 62 U	< 8.3 U	< 8.3 U	< 62 U	< 87 U	< 87 U	41 J	< 87 U	< 8.3 U
VAP-7-GW	2-4	10/9/2015	< 400 U	< 61 U	< 8.1 U	< 8.1 U	< 61 U	< 85 U	< 85 U	< 85 U	< 85 U	< 8.1 U
VAP-8-GW	1-2	10/8/2015	290 J	< 61 U	< 8.2 U	< 8.2 U	< 61 U	< 86 U	< 86 U	< 86 U	< 86 U	< 8.2 U
VAP-9-GW	2-4	10/1/2015	< 400 U	< 60 U	< 8 U	< 8 U	< 60 U	< 84 U	< 84 U	< 84 U	< 84 U	< 8 U
	2-4 (DUP-01)	10/1/2015	< 400 U	< 60 U	< 8 U	< 8 U	< 60 U	< 84 U	< 84 U	< 84 U	< 84 U	< 8 U
VAP-10-GW	0-2	10/19/2015	< 360 U	< 55 U	< 7.3 U	< 7.3 U	< 55 U	< 77 U	< 77 U	< 77 U	< 77 U	< 7.3 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Fluorene	Hexachloro-benzene	Hexachloro-butadiene	Hexachlorocyclo-pentadiene	Hexachloro-ethane	Indeno[1,2,3-cd]-pyrene	Isophorone	Naphthalene	Nitrobenzene	N-Nitrosodi-n-propylamine	N-Nitrosodi-phenylamine
Well/Sample Details													
VAP-1-GW	1-2	10/2/2015	< 8 U	< 8 U	< 60 U	< 400 U F1	< 60 U	< 8 U	< 60 U	< 8 U	< 120 U	< 60 U	< 60 U
VAP-2 GW	2-4	10/5/2015	< 8.6 U	< 8.6 U	< 64 U	< 420 U	< 64 U	< 8.6 U	< 64 U	< 8.6 U	< 130 U	< 64 U	< 64 U
VAP-3-GW	1-2	10/5/2015	< 8.1 U	< 8.1 U	< 61 U	< 400 U F1	< 61 U	< 8.1 U	< 61 U	< 8.1 U	< 120 U	< 61 U	< 61 U
VAP-4-GW	6-8	10/6/2015	< 8.1 U	< 8.1 U	< 61 U	< 400 U	< 61 U	< 8.1 U	< 61 U	< 8.1 U	< 120 U	< 61 U	< 61 U
VAP-5-GW	4-6	10/7/2015	< 8.3 U	< 8.3 U	< 63 U	< 410 U	< 63 U	< 8.3 U	< 63 U	< 8.3 U	< 130 U	< 63 U	< 63 U
VAP-6-GW	2-4	10/8/2015	< 8.3 U	< 8.3 U	< 62 U	< 410 U	< 62 U	< 8.3 U	< 62 U	< 8.3 U	< 120 U	< 62 U	< 62 U
VAP-7-GW	2-4	10/9/2015	< 8.1 U	< 8.1 U	< 61 U	< 400 U	< 61 U	< 8.1 U	< 61 U	< 8.1 U	< 120 U	< 61 U	< 61 U
VAP-8-GW	1-2	10/8/2015	< 8.2 U	< 8.2 U	< 61 U	< 400 U	< 61 U	< 8.2 U	< 61 U	< 8.2 U	< 120 U	< 61 U	< 61 U
VAP-9-GW	2-4	10/1/2015	< 8 U	< 8 U	< 60 U	< 400 U	< 60 U	< 8 U	< 60 U	< 8 U	< 120 U	< 60 U	< 60 U
	2-4 (DUP-01)	10/1/2015	< 8 U	< 8 U	< 60 U	< 400 U	< 60 U	< 8 U	< 60 U	< 8 U	< 120 U	< 60 U	< 60 U
VAP-10-GW	0-2	10/19/2015	< 7.3 U	< 7.3 U	< 55 U	< 360 U	< 55 U	< 7.3 U	< 55 U	6 J	< 110 U	< 55 U	< 55 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 10
Summary of Soil SVOC Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

Location ID	Sample Depth (feet)	Sample Date	Penta-chlorophenol	Phenanthrene	Phenol	Pyrene
Well/Sample Details						
VAP-1-GW	1-2	10/2/2015	< 180 U F1 F2	< 8 U	< 60 U	< 8 U
VAP-2 GW	2-4	10/5/2015	< 190 U	< 8.6 U	< 64 U	< 8.6 U
VAP-3-GW	1-2	10/5/2015	< 180 U	< 8.1 U	< 61 U	< 8.1 U
VAP-4-GW	6-8	10/6/2015	< 180 U	< 8.1 U	< 61 U	< 8.1 U
VAP-5-GW	4-6	10/7/2015	< 190 U	< 8.3 U	< 63 U	< 8.3 U
VAP-6-GW	2-4	10/8/2015	< 190 U	< 8.3 U	< 62 U	< 8.3 U
VAP-7-GW	2-4	10/9/2015	< 180 U	< 8.1 U	< 61 U	< 8.1 U
VAP-8-GW	1-2	10/8/2015	< 180 U	< 8.2 U	< 61 U	< 8.2 U
VAP-9-GW	2-4	10/1/2015	< 180 U	< 8 U	< 60 U	< 8 U
	2-4 (DUP-01)	10/1/2015	< 180 U	< 8 U	< 60 U	< 8 U
VAP-10-GW	0-2	10/19/2015	< 170 U	< 7.3 U	< 55 U	< 7.3 U

Notes:

*	Laboratory control sample or laboratory control sample duplicate is outside acceptable limits
**	Anaylzed by Method 8260B_TCLP; presented in µg/L.
‡	Soil samples analyzed by Method 8270C; presented in µg/kg.
B	Compound was found in the blank and sample.
F1	Matrix Spike and/or Matrix Spike Duplicate recovery is outside acceptable limits.
F2	Matrix Spike/Matrix Spike Duplicate Relative Percent Difference exceeds control limits.
J	Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Acronyms:

µg/kg	Micrograms per kilogram.
SVOC	Semi-volatile organic compounds.

Table 11
Summary of Soil Metals Analytical Results‡
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location ID	Sample Depth (feet)	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Cr (VI)	Mercury
Well/Sample Details											
VAP-1-GW	1-2	10/2/2015	9.1	79	0.058 J B	14	14	0.43 J	0.098 J B	< 0.96 U	0.046 J
VAP-2 GW	2-4	10/5/2015	3.7	93	0.038 J	7.7 B	8.1	0.46 J	< 0.56 U	0.44 J	0.018 J
VAP-3-GW	1-2	10/5/2015	10	66	0.068 J	14 B	11	< 0.43 U	< 0.43 U	< 2 U	0.043 J
VAP-4-GW	6-8	10/6/2015	2.3	440	0.048 J	8.2 B	6.9	< 0.43 U	< 0.43 U	0.35 J	< 0.12 U
VAP-5-GW	4-6	10/7/2015	7.1	110	0.11 J	9.2 B	8.7	0.44 J	< 0.45 U	< 1 U	< 0.11 U
VAP-6-GW	2-4	10/8/2015	8.7	120	0.09 J B	14 B	8.7 B	< 0.58 U	0.12 J	0.56 J	0.026 J
VAP-7-GW	2-4	10/9/2015	8.2	73	0.066 J B	12 B	9.6 B	< 0.57 U	< 0.57 U	< 0.99 U	0.022 J
VAP-8-GW	1-2	10/8/2015	8.9	45	0.054 J B	12 B	12 B	< 0.51 U	0.18 J	0.47 J	0.041 J
VAP-9-GW	2-4	10/1/2015	5.5	70	0.019 J B	11	8.9	0.52	< 0.42 U	< 0.97 U	< 0.12 U
	2-4 (DUP-01)	10/1/2015	6	110	< 0.38 U	11	8	< 0.94 U	< 0.94 U	< 0.94 U	< 0.12 U
VAP-10-GW	0-2	10/19/2015	5.9	78	0.072 J	9.6	11	0.32 J	< 0.47 U	< 1.7 U	0.02 J

Notes:

‡ Soil samples analyzed by Method 6010B and, for mercury, Method 7471A; presented in mg/kg.
B Compound was found in the blank and sample.
J Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit, and the concentration is an approximate value.
U Indicates the analyte was analyzed for but not detected.

Acronym:

mg/kg Milligrams per kilogram.

Table 12
Summary of Geotechnical Analytical Results
Grenada Manufacturing, LLC
Grenada, Mississippi

ARCADIS

Location/ Sample ID	Date Collected	Depth (feet)	Natural Moisture (%)	Porosity			Permeability (cm/sec)	USDA Classification
				Water Filled (%)	Air Filled (%)	Total (%)		
VAP 6*	10/8/2015	6-8	20.9	36.0	0.0	36.0	NA	Brown Lean Clay†
VAP 8*	10/8/2015	6-8	22.6	37.4	0.3	37.7	NA	Brown Silty Clay†
VAP 9*	10/9/2015	6-8	25.4	39.7	1.9	41.6	NA	Brown Lean Clay†
ST-219A**	7/15-7/20/2015	6-8	23.3	NA	NA	38.00	3.46E-09	Silt Loam
ST-219B**	7/13-7/16/2015	6-8	22.2	NA	NA	35.96	1.32E-07	Silty Clay Loam
ST-219C**	7/13-7/20/2015	6-8	21.8	NA	NA	38.03	3.12E-09	Silt Loam

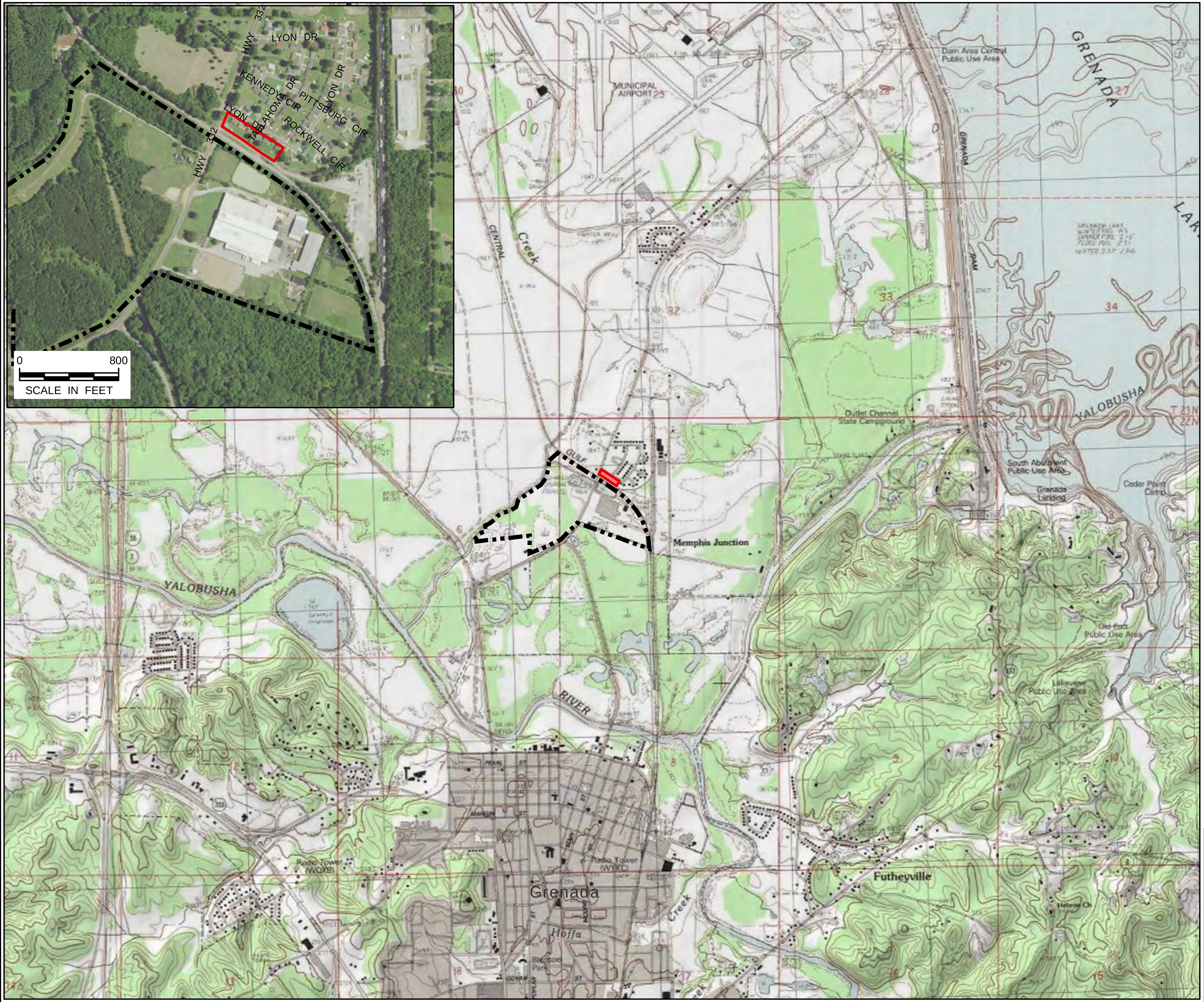
Notes:

*	Sample collected by Arcadis and analyzed by CGC.
**	Sample collected by T&M Associates and analyzed by S&ME.
†	Visual description.

Acronyms:

%	Percentage.
cm/sec	Centimeters per second.
NA	Not applicable.

FIGURES



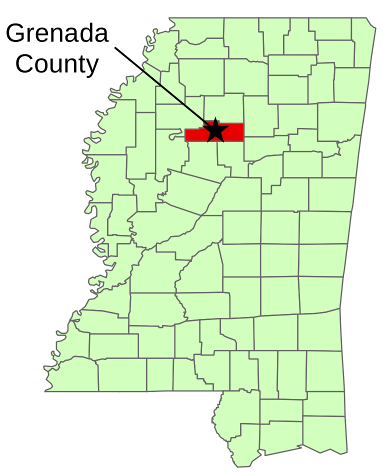
LEGEND

Approximate Site Boundary

VI Focus Area

REFERENCE: USGS 7.5-minute Series Topographic Quadrangle: Grenada, Mississippi, 1984.

MISSISSIPPI



0 2,400 4,800
SCALE IN FEET

PROJECTION: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, July 2014).

GRENADA MANUFACTURING, LLC
GRENADA, MISSISSIPPI

VAPOR INTRUSION ASSESSMENT REPORT

Facility Location Map

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) LD:(B.ALTOM) PIC:(P.WAGNER) PM:(S.SHARP) TM:(M.HEAP)
PROJECT: LA003307.0001 PATH: G:\GIS\MERITOR\MS_GRENADA\MAPDOCS\2016\VI ASSESS\F1 GREN_VIA AREA MAP.MXD DATE SAVED: 4/22/2016 9:47:11 AM BY: CCSMITH

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

LEGEND

- Approximate Site Boundary
- VI Focus Area
- Monitoring Well
- Temporary Monitoring Well
- Stratigraphy Boring
- Waterloo Profile
- Soil-Gas Port
- Soil-Gas Port (2015)
- Ambient-Air Sample (2015/2016)
- Vertical Aquifer Profile Sample (2015)
- Residential Vapor Intrusion (VI) Sample (2015/2016)

NOTE: All locations are approximate.

0 150 300

SCALE IN FEET

PROJECTION: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, July 2014).

GRENADA MANUFACTURING, LLC
GRENADA, MISSISSIPPI

VAPOR INTRUSION ASSESSMENT REPORT

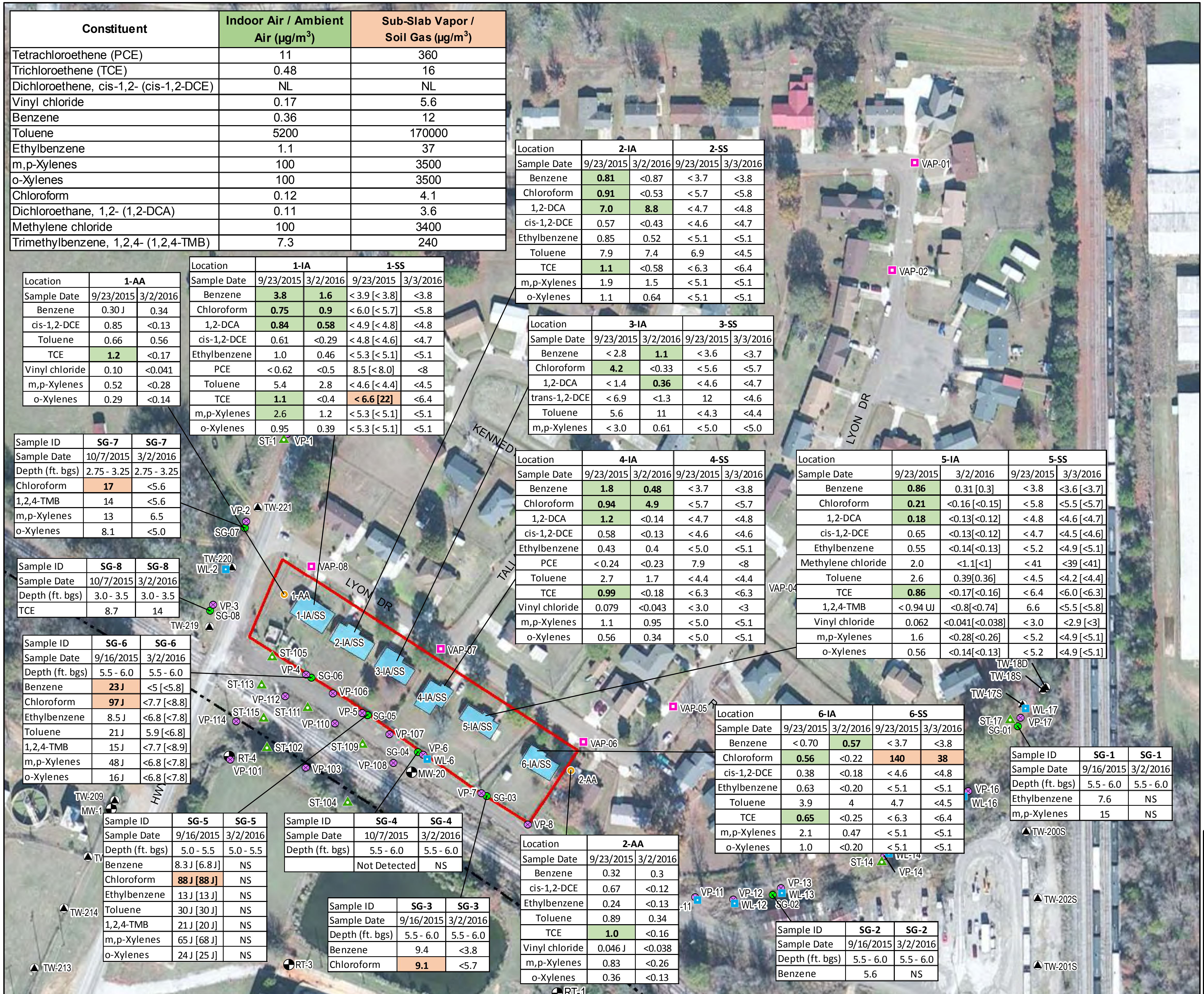
VI Focus Area and Vicinity

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) LD:(B.ALTOM) PIC:(P.WAGNER) PM:(S.SHARP) TM:(M.HEAP)
PROJECT: LA003307.0001 PATH: G:\GISMERITORMS_GRENADA\MAPDOCS\2016\VI ASSESS\F2 GREN_VIA VI FOCUS.MXD DATE SAVED: 4/22/2016 2:51:35 PM BY: CCSMITH

Constituent	Indoor Air / Ambient Air (µg/m³)	Sub-Slab Vapor / Soil Gas (µg/m³)
Tetrachloroethene (PCE)	11	360
Trichloroethene (TCE)	0.48	16
Dichloroethene, cis-1,2- (cis-1,2-DCE)	NL	NL
Vinyl chloride	0.17	5.6
Benzene	0.36	12
Toluene	5200	170000
Ethylbenzene	1.1	37
m,p-Xylenes	100	3500
o-Xylenes	100	3500
Chloroform	0.12	4.1
Dichloroethane, 1,2- (1,2-DCA)	0.11	3.6
Methylene chloride	100	3400
Trimethylbenzene, 1,2,4- (1,2,4-TMB)	7.3	240



Location	1-AA	
Sample Date	9/23/2015	3/2/2016
Benzene	0.30 J	0.34
cis-1,2-DCE	0.85	<0.13
Toluene	0.66	0.56
TCE	**1.2**	<0.17
Vinyl chloride	0.10	<0.041
m,p-Xylenes	0.52	<0.28
o-Xylenes	0.29	<0.14

Location	1-IA		1-SS	
Sample Date	9/23/2015	3/2/2016	9/23/2015	3/3/2016
Benzene	**3.8**	**1.6**	< 3.9 [< 3.8]	<3.8
Chloroform	**0.75**	**0.9**	< 6.0 [< 5.7]	<5.8
1,2-DCA	**0.84**	**0.58**	< 4.9 [< 4.8]	<4.8
cis-1,2-DCE	0.61	<0.29	< 4.8 [< 4.6]	<4.7
Ethylbenzene	1.0	0.46	< 5.3 [< 5.1]	<5.1
PCE	< 0.62	<0.5	8.5 [< 8.0]	<8
Toluene	5.4	2.8	< 4.6 [< 4.4]	<4.5
TCE	**1.1**	<0.4	**< 6.6 [22]**	<6.4
m,p-Xylenes	2.6	1.2	< 5.3 [< 5.1]	<5.1
o-Xylenes	0.95	0.39	< 5.3 [< 5.1]	<5.1

Location	2-IA		2-SS	
Sample Date	9/23/2015	3/2/2016	9/23/2015	3/3/2016
Benzene	**0.81**	<0.87	< 3.7	<3.8
Chloroform	**0.91**	<0.53	< 5.7	<5.8
1,2-DCA	**7.0**	**8.8**	< 4.7	<4.8
cis-1,2-DCE	0.57	<0.43	< 4.6	<4.7
Ethylbenzene	0.85	0.52	< 5.1	<5.1
Toluene	7.9	7.4	6.9	<4.5
TCE	**1.1**	<0.58	< 6.3	<6.4
m,p-Xylenes	1.9	1.5	< 5.1	<5.1
o-Xylenes	1.1	0.64	< 5.1	<5.1

Location	3-IA		3-SS	
Sample Date	9/23/2015	3/2/2016	9/23/2015	3/3/2016
Benzene	< 2.8	**1.1**	< 3.6	<3.7
Chloroform	**4.2**	<0.33	< 5.6	<5.7
1,2-DCA	< 1.4	**0.36**	< 4.6	<4.7
trans-1,2-DCE	< 6.9	<1.3	12	<4.6
Toluene	5.6	11	< 4.3	<4.4
m,p-Xylenes	< 3.0	0.61	< 5.0	<5.0

Sample ID	SG-7	SG-7
Sample Date	10/7/2015	3/2/2016
Depth (ft. bgs)	2.75 - 3.25	2.75 - 3.25
Chloroform	**17**	<5.6
1,2,4-TMB	14	<5.6
m,p-Xylenes	13	6.5
o-Xylenes	8.1	<5.0

Location	4-IA		4-SS	
Sample Date	9/23/2015	3/2/2016	9/23/2015	3/3/2016
Benzene	**1.8**	**0.48**	< 3.7	<3.8
Chloroform	**0.94**	**4.9**	< 5.7	<5.7
1,2-DCA	**1.2**	<0.14	< 4.7	<4.8
cis-1,2-DCE	0.58	<0.13	< 4.6	<4.6
Ethylbenzene	0.43	0.4	< 5.0	<5.1
PCE	< 0.24	<0.23	7.9	<8
Toluene	2.7	1.7	< 4.4	<4.4
TCE	**0.99**	<0.18	< 6.3	<6.3
Vinyl chloride	0.079	<0.043	< 3.0	<3
m,p-Xylenes	1.1	0.95	< 5.0	<5.1
o-Xylenes	0.56	0.34	< 5.0	<5.1

Location	5-IA		5-SS	
Sample Date	9/23/2015	3/2/2016	9/23/2015	3/3/2016
Benzene	**0.86**	0.31 [0.3]	< 3.8	<3.6 [<3.7]
Chloroform	**0.21**	<0.16 [<0.15]	< 5.8	<5.5 [<5.7]
1,2-DCA	**0.18**	<0.13[<0.12]	< 4.8	<4.6 [<4.7]
cis-1,2-DCE	0.65	<0.13[<0.12]	< 4.7	<4.5 [<4.6]
Ethylbenzene	0.55	<0.14[<0.13]	< 5.2	<4.9 [<5.1]
Methylene chloride	2.0	<1.1[<1]	< 41	<39 [<41]
Toluene	2.6	0.39[0.36]	< 4.5	<4.2 [<4.4]
TCE	**0.86**	<0.17[<0.16]	< 6.4	<6.0 [<6.3]
1,2,4-TMB	< 0.94 UJ	<0.8[<0.74]	6.6	<5.5 [<5.8]
Vinyl chloride	0.062	<0.041[<0.038]	< 3.0	<2.9 [<3]
m,p-Xylenes	1.6	<0.28[<0.26]	< 5.2	<4.9 [<5.1]
o-Xylenes	0.56	<0.14[<0.13]	< 5.2	<4.9 [<5.1]

Sample ID	SG-8	SG-8
Sample Date	10/7/2015	3/2/2016
Depth (ft. bgs)	3.0 - 3.5	3.0 - 3.5
TCE	8.7	14

Sample ID	SG-6	SG-6
Sample Date	9/16/2015	3/2/2016
Depth (ft. bgs)	5.5 - 6.0	5.5 - 6.0
Benzene	**23 J**	<5 [<5.8]
Chloroform	**97 J**	<7.7 [<8.8]
Ethylbenzene	8.5 J	<6.8 [<7.8]
Toluene	21 J	5.9 [<6.8]
1,2,4-TMB	15 J	<7.7 [<8.9]
m,p-Xylenes	48 J	<6.8 [<7.8]
o-Xylenes	16 J	<6.8 [<7.8]

Location	6-IA		6-SS	
Sample Date	9/23/2015	3/2/2016	9/23/2015	3/3/2016
Benzene	< 0.70	**0.57**	< 3.7	<3.8
Chloroform	**0.56**	<0.22	**140**	**38**
cis-1,2-DCE	0.38	<0.18	< 4.6	<4.8
Ethylbenzene	0.63	<0.20	< 5.1	<5.1
Toluene	3.9	4	4.7	<4.5
TCE	**0.65**	<0.25	< 6.3	<6.4
m,p-Xylenes	2.1	0.47	< 5.1	<5.1
o-Xylenes	1.0	<0.20	< 5.1	<5.1

Sample ID	SG-1	SG-1
Sample Date	9/16/2015	3/2/2016
Depth (ft. bgs)	5.5 - 6.0	5.5 - 6.0
Ethylbenzene	7.6	NS
m,p-Xylenes	15	NS

Sample ID	SG-5	SG-5
Sample Date	9/16/2015	3/2/2016
Depth (ft. bgs)	5.0 - 5.5	5.0 - 5.5
Benzene	8.3 J [6.8 J]	NS
Chloroform	**88 J [88 J]**	NS
Ethylbenzene	13 J [13 J]	NS
Toluene	30 J [30 J]	NS
1,2,4-TMB	21 J [20 J]	NS
m,p-Xylenes	65 J [68 J]	NS
o-Xylenes	24 J [25 J]	NS

Sample ID	SG-4	SG-4
Sample Date	10/7/2015	3/2/2016
Depth (ft. bgs)	5.5 - 6.0	5.5 - 6.0
	Not Detected	NS

Location	2-AA	
Sample Date	9/23/2015	3/2/2016
Benzene	0.32	0.3
cis-1,2-DCE	0.67	<0.12
Ethylbenzene	0.24	<0.13
Toluene	0.89	0.34
TCE	**1.0**	<0.16
Vinyl chloride	0.046 J	<0.038
m,p-Xylenes	0.83	<0.26
o-Xylenes	0.36	<0.13

Sample ID	SG-3	SG-3
Sample Date	9/16/2015	3/2/2016
Depth (ft. bgs)	5.5 - 6.0	5.5 - 6.0
Benzene	9.4	<3.8
Chloroform	**9.1**	<5.7

Sample ID	SG-2	SG-2
Sample Date	9/16/2015	3/2/2016
Depth (ft. bgs)	5.5 - 6.0	5.5 - 6.0
Benzene	5.6	NS

LEGEND

- Approximate Site Boundary
- VI Focus Area
- Monitoring Well
- Temporary Monitoring Well
- Stratigraphy Boring
- Waterloo Profile
- Soil-Gas Port
- Soil-Gas Port (2015)
- Ambient-Air Sample (2015/2016)
- Vertical Aquifer Profile Sample (2015)
- Residential Vapor Intrusion (VI) Sample (2015/2016)

NOTES:
1) All locations are approximate.
2) Soil-Gas sample (SG) locations depths are reported in feet below ground surface (ft bgs).
3) [ ] indicates a duplicate sample.
4) All concentrations reported in micrograms per cubic meter (µg/m³).
5) **BOLD** and shaded values exceed the applicable screening level based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.
6) J - The compound was positively identified; however, the associated numerical value is an estimated concentration only.
7) UJ - The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
8) Only constituents detected in either soil-gas samples and paired indoor air and sub-slab sample locations are presented.

VI - Vapor Intrusion
NS - Not Sampled

0 150 300
SCALE IN FEET

PROJECTION: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, July 2014).

GRENADA MANUFACTURING, LLC
GRENADA, MISSISSIPPI

VAPOR INTRUSION ASSESSMENT REPORT

VI Sampling (Indoor and Ambient Air, Sub-Slab Vapor and Soil Gas) Results

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) LD:(B.ALTOM) PIC:(P.WAGNER) PM:(S.SHARP) TM:(M.HEAP)
PROJECT: LA003307.0001 PATH: G:\GIS\MERITOR\MS_GRENADA\MAPDOCS\2016\VI ASSESS\F3 GREN_VIA VI RESULTS 2016.MXD DATE SAVED: 4/22/2016 2:39:13 PM BY: CCSMITH

LEGEND

- Approximate Site Boundary
- VI Focus Area
- Monitoring Well
- Temporary Monitoring Well
- Stratigraphy Boring
- Waterloo Profile
- Soil-Gas Port
- Soil-Gas Port (2015)
- Ambient-Air Sample (2015/2016)
- Vertical Aquifer Profile Groundwater Sample (2015)
- Residential Vapor Intrusion (VI) Sample (2015/2016)

NOTES:
1) All locations are approximate.
2) Groundwater samples were collected via Vertical Aquifer Profile method.
3) All concentrations reported in micrograms per liter (µg/L).
4) **BOLD** and shaded values exceed the applicable screening level based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1.0.
5) J indicates an estimated value.
6) Only cis-1,2-DCE and TCE results from the shallow groundwater sample are presented.

VI - Vapor Intrusion
NL - Not Listed

Analyte	USEPA VISL Residential Groundwater Screening Level
cis-1,2-Dichloroethene (cis-1,2-DCE)	NL
Trichloroethene (TCE)	1.5

0 160 320
SCALE IN FEET

PROJECTION: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, July 2014).

GRENADA MANUFACTURING, LLC
GRENADA, MISSISSIPPI

VAPOR INTRUSION ASSESSMENT REPORT

Constituents of Concern Detected in Shallow Groundwater (October 2015)

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) LD:(B.ALTOM) PIC:(P.WAGNER) PM:(S.SHARP) TM:(M.HEAP)
PROJECT: LA003307.0001 PATH: G:\GISMERITORMS_GRENADA\MAPDOCS\2016\VI ASSESS\F4 GREN_VIA GW RESULTS 201510.MXD DATE SAVED: 4/22/2016 2:50:26 PM BY: CCSMITH

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

APPENDIX A

USEPA Documents and Letters

ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana
Tel 225-292-1004
Fax 225-218-9677
www.arcadis-us.com

Mr. Donald Williams
Grenada Manufacturing, LLC
635 Highway 332
Grenada, Mississippi 38901

ENVIRONMENT

Subject:
Revised Interim Measures Work Plan – Vapor Intrusion Assessment
Grenada Manufacturing, LLC, Grenada, Mississippi.
Permit No. MSD 007 037 278

Date:
August 28, 2015

Contact:
John Ellis

Extension:
208

Email:
john.ellis@arcadis-us.com

Our ref:
IN000899.0013.00001
Grenada/IN899.13/C/1/bbn

Dear Mr. Williams:

ARCADIS is pleased to provide this Revised Interim Measures Work Plan (IMWP) to Grenada Manufacturing, LLC (Grenada Manufacturing) for its facility located in Grenada, Mississippi detailing the proposed Vapor Intrusion (VI) Assessment. The revisions to the IMWP incorporate comments provided by the U.S. Environmental Protection Agency (USEPA). This IMWP has been prepared in response to the June 30, 2015, USEPA Region 4 letter to Grenada Manufacturing, in which USEPA requested performance by Grenada Manufacturing of the tasks identified therein pursuant to the company's Hazardous and Solid Waste (HSWA) permit. The IMWP outlines screening, field work, laboratory analysis, data evaluation, and reporting proposed for the scope of work, which will be conducted in accordance with *the USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015).

Background

The manufacturing facility was constructed by Lyon in 1961 and sold to Rockwell International Corporation (Rockwell) in 1966. Rockwell operated a wheel cover manufacturing facility from 1966 to 1985, when the plant and property were sold to Textron, Inc. (Textron), formerly Randall Textron. In 1999, Textron sold the operations and property to Grenada Manufacturing, who continued to operate the wheel cover plant until 2008 when portions of the property were leased to ICE Industries, Inc. (ICE). Following ICE's lease of the premises, the facility was converted to a stamping plant, providing stamp-formed parts for various industries.

During prior groundwater investigation activities performed at the facility, an elevated concentration of trichloroethylene (TCE) was detected in a groundwater sample collected from off-site Monitoring Well MW-20 in a May 2012 sampling event. Seventeen soil gas ports (VP-1 through VP-17) were installed and sampled in 2013 to further investigate this area. An additional six soil gas ports (VP-101, VP-103, VP108, VP-110, VP112, and VP-114) were installed and sampled during May 2014.

Groundwater samples were also obtained in the fall of 2012 and the spring of 2013 from sample locations WL-1, WL-2, WL-6, WL-10, WL-11, WL-12, WL-13, WL-15, WL-16, WL-17, and TW-18S/D. The sample locations correspond to the soil gas ports (VPs) with the same number. Given the construction of the soil gas ports, groundwater is sometimes encountered in ports and water samples are collected. Water samples were collected from (VP-1, VP-2, VP-4, VP-5, VP-6, VP-7, VP-8, VP-10, VP-11, VP-12, VP-14, VP-15, VP-16, VP-17, VP-101, VP-103, VP-106, VP-107, VP-108, VP-110, VP-112, and VP-114). The data and preliminary evaluation from the sampling were submitted to USEPA Region 4 in a letter dated January 17, 2014. A figure presenting the groundwater data obtained from the soil gas ports is provided in Attachment A. These data were collected using the methods described in the January 17, 2014, letter.

Figure 1 depicts the sample locations in relation to the off-site Monitoring Well MW-20 assessment area. USEPA requested that Grenada Manufacturing prepare an IMWP to evaluate the potential VI pathway in the off-site area in a letter dated June 30, 2015. An IMWP was submitted on August 3, 2015. USEPA provided comments on the IMWP in a letter dated August 20, 2015.

Scope of Work

In an effort to evaluate the potential VI pathway in the off-site area, additional air data will be collected. Samples collected will include:

- Soil gas
- Ambient air
- Indoor air from select residential buildings
- Sub-slab vapor from select residential buildings

A reconnaissance of any building where indoor air and sub-slab vapor samples will be collected will be conducted prior to sampling.

USEPA has also requested that sampling of groundwater conditions in the upper aquifer be conducted. The groundwater data collected will be reviewed to determine the extent of constituents in groundwater as well as the source of any such constituents.

Details on the sampling procedures and data evaluations are provided below.

Any additional sampling beyond what is described in this IMWP will be based on the data evaluation. The evaluation will use the multiple lines of evidence (MLE) approach described in the *USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015). If the evaluation indicates that the VI pathway is incomplete, additional VI evaluation is not warranted.

Soil Gas Assessment

ARCADIS proposes to install and sample eight shallow soil gas ports as shown on Figure 1. These eight proposed off-site locations will be installed in proximity to the existing deeper soil gas ports (VP-2 through VP-6, VP-13, and VP-17), including the ones with the elevated TCE concentrations. A desktop review of the available soil borings and geological cross-sections shows that an approximate 8- to 12-foot-thick surficial clay layer underlain by a sand layer is present in this area. The existing soil gas ports with detected volatile organic compound (VOC) concentrations were screened at the clay/sand interface or within the water-bearing sand layer. ARCADIS will use the data to evaluate the migration of concentrations detected in the previously installed soil gas ports.

Soil Gas Port Installation

A truck mounted Geoprobe® will be used to create an open borehole, and a 2.25-inch-diameter Macro-Core® sampler will be used to remove soil from the boring. As part of the reconnaissance, a utility locate will be requested to identify buried utilities in the vicinity of the structures and any proposed soil gas ports prior to intrusive activities. Soil will be classified in the field and certain soil samples may be collected from select borings for soil moisture analysis. Each of the soil gas ports will be installed to a depth of 6 feet below ground surface and will be screened from the 5.5-foot to 6-foot interval below ground surface. Soil gas ports will be constructed of 0.25-inch nylon tubing with 6-inch stainless steel screens. The screen will be installed with filter pack sand placed around the screen to 6 inches above the screen. Granular bentonite will be used to fill the remainder of the borehole above the screen filter pack to the surface and hydrated during installation. A protective cover will be installed at the surface. At the surface, the end of the tubing will be equipped with a Swagelok® fitting and a gas tight valve. Upon completion of the installation and sealing of each soil gas port, the volume of air in the sand pack will be calculated and approximately 3 times this volume of air will be purged using a low-flow air sampling pump set at a rate of 100 milliliters per minute (mL/min).

Soil Gas Port Sampling

A minimum of 24 hours after installation, each soil gas port will be sampled using 1-liter polished stainless steel SUMMA® canisters with calibrated flow controllers that are cleaned and certified by the laboratory. The flow controllers will be calibrated for a sampling duration of 10 minutes (≈ 80 mL/min). Approximately one to three times the dead volume of air will be purged at a rate of 100 mL/min prior to sampling using a low-flow air sampling pump. The amount and rate of dead volumes purged will be measured and recorded in the field and will remain consistent between sample locations. The sampling procedure consists of connecting the purge pump to the soil gas port, then turning it on, then opening the soil gas port valve to purge the tubing. At completion of purging, the valve on the soil gas port will be closed, the purge pump removed, and then the sampling canister and flow controller will be connected to the soil gas port. The sampling canister will be opened and then the valve on the soil gas port will be opened. At the completion of sampling, the canister will be closed first and then the soil gas port valve. A final canister vacuum between 2 and 5 inches of mercury will signify that sample collection is complete. At the completion of each sample collection, the Summa canisters will be closed and sealed with a brass Swagelok® cap.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) will be collected before and during sampling activities.

Residential VI Assessment

In addition to the supplemental soil gas investigation, ARCADIS proposes to complete VI sampling at six residential properties located on Lyon Drive (as shown on Figure 1). Work will be conducted in accordance with *the USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015).

The six residential structures on Lyon Drive have been selected based on their relative proximity to known groundwater impacts (MW-20) and potential soil gas impacts (VP-2, VP-3, VP-5, VP-6). Only four of these structures are within 100 feet of the known groundwater or potential soil gas impacts (as shown on Figure 1). The other two properties, east and west of the potentially impacted area, are being assessed as a conservative measure. At this time, no preferential pathways have been identified in the area of potential impacts.

Community Outreach

Prior to engaging property owners regarding the residential VI sampling, the USEPA will conduct outreach with potentially affected community members. The purpose of this outreach will be to disseminate information regarding the Site history, constituents being assessed, vapor intrusion, sampling process, and obtaining access.

Residential VI sampling will be contingent on the USEPA obtaining approval and a signed access agreement from the property owners.

Reconnaissance of Structures

As recommended in USEPA guidance, prior to conducting sampling activities, a reconnaissance of the potentially affected structures will be performed. As appropriate, a visual inspection of the structure's interiors and exteriors will be performed to identify potential preferential pathways (such as utilities) to potential vapor migration into the structures and to identify any background sources or other factors that could affect the quality of indoor air. As part of the reconnaissance, information will be gathered from the homeowner on potential sources within each structure, ventilation systems, and building construction. A copy of the indoor air building survey and sampling form is provided in Attachment B. Identified potential background sources will be removed from the structure during the VI sampling event.

Samples collected from the residential structures will be given a unique identification to conceal the identity of the sample locations.

Review of the Grenada County Assessor records indicates that the houses along Lyon Drive are single-story buildings with slab-on-grade construction (no basements) and are less than 1,500 square feet in size. Thus, paired indoor air and sub-slab sampling is recommended at each structure.

USEPA will collect information on the residences in the community during their outreach campaign.

Indoor Air Sampling

Indoor air samples will be collected using 6-liter polished stainless steel SUMMA® canisters with calibrated flow controllers that are cleaned and certified by the laboratory. The canisters will utilize flow controllers calibrated for a 24-hour sample collection. During the collection process, the indoor air canister will be securely positioned at the breathing zone level for the most sensitive exposed population and located near the center of the structure. Because all six of the structures identified for the residential VI assessment are single-story, slab-on-grade construction and are less than 1,500 square feet in size, one indoor air sample location is appropriate. All indoor air samples will be collected under normal home conditions. A final canister vacuum on the flow controller between 2 and 5 inches of mercury will signify that sample collection is complete. At the completion of sampling, the canister will be closed and the flow controller removed. The canisters will be gauged with an independent gauge and the final vacuum recorded. The canister will then be closed and sealed with a brass Swagelok® cap.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) will be collected before and during sampling activities.

Ambient Air Sampling

Ambient air samples will be collected outdoors concurrently with indoor air samples to evaluate potential background contaminant sources from outside the structures. Ambient air samples will be collected using 6-liter polished stainless steel SUMMA® canisters with calibrated flow controllers that are cleaned and certified by the laboratory. The canisters will utilize flow controllers calibrated for a 24-hour sample collection. During the collection process, the sample canister will be securely positioned at breathing height (approximately 5 feet above the ground). It is anticipated that all structures will not be sampled at the same time. It is proposed that, instead of collecting ambient air samples at each structure location, ambient air samples be collected at strategic locations that cover multiple structures at once. One ambient air sample will be collected upwind of multiple groups of buildings. At this time, two ambient air sample locations are proposed (Figure 1). If multiple events are required to collect indoor air samples, additional ambient air samples will be collected during these events. The location of the ambient air sample will be determined based on wind direction at the time of sampling and the forecasted wind direction.

The ambient air sample canister will be placed so as to minimize potential contamination from extraneous sources. The canister will be positioned away from wind shields such as trees or bushes and at least 15 feet away from any buildings. Collection of the ambient air sample will follow the same methodology as described for indoor air samples.

Sub-Slab Port Installation

In accordance with USEPA guidance, a permanent sub-slab vapor port will be installed in the concrete floor near the center of the structure for collecting sub-slab vapor samples. The ports will be installed after the collection of the indoor air sample from that structure. The sub-slab vapor ports will be designed to lie flush on the upper surface of the concrete floor and to “float” in the slab to enable collection of vapors from sub-slab material in direct contact with the slab or from a pocket of air directly beneath the slab created by sub-slab material subsidence. Stainless steel Vapor Pins™ will be utilized. The Vapor Pins™ will be preassembled for each installation prior to drilling through the floor to minimize exposure time of the sub-slab soils to an open hole.

To install a sub-slab vapor port, a rotary hammer drill will be used to drill a 1.125-inch-outer-diameter hole approximately 2 inches into the floor. The inside of the 1.125-inch-outer-diameter hole will be cleaned with a damp towel and then a 0.625-inch-outer-diameter hole will be drilled through the remainder of the concrete. Once through the concrete, the drill will be allowed to penetrate an additional 2 to 3 inches into the sub-slab material. The outer-diameter hole will be cleaned once more with a damp towel. The Vapor Pins™ will be pressed into the concrete slab and sealed with the supplied non-volatile organic compound silicone sleeve. After the sub-slab vapor port is set, a small aliquot of air will be purged into a Tedlar® bag so as to not introduce potential vapors to the building interior. A protective cap will be placed on the end of the Vapor Pin™ and finished with a stainless steel thread-on flush-mount cover. Once the sub-slab vapor port is installed, it will be allowed to set for a minimum of 24-hours prior to sampling. These sub-slab vapor ports will remain in place after the initial sampling for use in future sampling events. After all sampling events have been completed, the sub-slab vapor ports will be removed and the holes will be patched.

Sub-Slab Port Sampling

The sub-slab vapor samples will be collected using 1-liter polished stainless steel SUMMA® canisters that are cleaned and certified by the laboratory with a calibrated flow controller. The flow controller will be calibrated for a sampling duration of 10 minutes (≈80 mL/min). The sub-slab samples will be collected by assembling a short (≈16 inches) length of 0.25-inch-diameter nylon tubing fitted with stainless steel Swagelok® tube connectors at each end that connect directly to the sub-slab vapor port and the sampling canister. A stainless steel gas-tight valve will be installed near the canister end of the sample tubing. The sample assembly will be connected to the sub-slab vapor port and approximately three volumes of dead air will be purged from the sample assembly at a rate of approximately 100 mL/min prior to sampling using a 60-mL syringe into a Tedlar® bag so as to not introduce potential vapors to the building interior. The sampling canister will then be connected, opened, and then the valve on the sample assembly will be opened. A final canister vacuum on the flow controller between 2 and 5 inches of mercury will signify that sample collection is complete. At the completion of sampling, the canister will be closed first and then the sample assembly to the sub-slab vapor port valve. The canisters will be disconnected from the port and the flow controller removed. The canisters will be gauged with an independent gauge and the final vacuum recorded. The canister will then be closed and sealed with a brass Swagelok® cap.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) will be collected before and during sampling activities.

Residential VI Seasonal Sampling

In accordance with USEPA guidance, multiple VI sampling events will be performed to demonstrate that the VI pathway is not complete. Thus, a second seasonal sampling event will be performed in the opposite season as the initial sampling event. The seasonal sampling event will follow the procedures detailed above for soil gas, sub-slab, indoor air, and ambient air sampling.

Air Sample Laboratory Analysis

Air samples will be analyzed for the following VOCs:

- 1,1-Dichloroethene (1,1-DCE)
- 1,2-Dichloroethane (1,2-DCA)
- cis-1,2-Dichloroethene (cis-1,2-DCE)
- trans-1,2-Chloroethene (trans-1,2-DCE)
- Tetrachloroethene (PCE)
- 1,1,2-Trichloroethane (1,1,2-TCA)
- Trichloroethene (TCE)
- Vinyl Chloride
- Benzene
- Toluene*
- Ethylbenzene
- Xylenes*
- 1,2,4-Trimethylbenzene
- Chloroform
- Methylene Chloride

*Benzene and xylenes are being analyzed at USEPA's request to evaluate background concentrations in the structures that are being sampled.

Analysis of the air samples will use USEPA Compendium Method TO-15. Sample media will be ordered from Eurofins Air Toxics, Inc. (Eurofins) in Folsom, California, using proper quality assurance/quality control procedures and chain-of-custody protocols. Analysis of air samples will also be conducted by Eurofins. Analytical results will be reported in concentration units of parts per million by volume (ppmv) and micrograms per cubic meter (µg/m3). Eurofins will be instructed to report data with constituent detection limits at or below screening levels. To minimize potential effects on the sample integrity, samples will be shipped within 24 hours following collection and the samples will not be chilled during storage. To improve the confidence in measured concentrations, a duplicate sample will be collected and analyzed for the same parameters as the parent samples. Duplicate samples will be collected by connecting two canisters together so that they have the same intake port. One duplicate sample will be collected per 20 samples of each media sampled, with the exception of the ambient air (e.g., one duplicate soil gas sample, one duplicate sub-slab sample, and one indoor air sample).

Leak Testing

In accordance with USEPA guidance, leak testing will be performed on the soil gas and sub-slab vapor ports. Leak testing will be accomplished by enriching the atmosphere in the immediate vicinity of the area where the port intersects the ground with a tracer gas and measure a vapor sample from the port for the presence of high concentrations (>10 percent) of the tracer gas. A shroud consisting of a 1-gallon container equipped with two gas valves will be placed over the sub-slab vapor ports and sealed to the ground with modeling clay. The tubing assembly will be passed through the shroud to the outside through a hole that will then be sealed with modeling clay. A cylinder of laboratory-grade compressed helium gas will be connected to one gas valve, and helium will be introduced to the shroud at a slow rate in order to not pressurize the shroud. A Dielectric MGD-2002 Helium Detector (or equivalent) will be used to measure the amount of helium in the shroud by inserting the detector probe into the second gas valve in the shroud. Once a minimum of 60 percent helium is detected in the shroud, the port will then be purged and the purged air will be collected in a Tedlar® bag. The helium detector will then be used to screen the sample aliquot in the Tedlar® bag. If less than 10 percent helium is detected in the Tedlar® bag, a SUMMA® canister will then be attached to the tubing assembly and the sample collected while the helium concentration within the shroud is maintained at a minimum of 60 percent. At the completion of the sample collection, an aliquot of air will be purged again from the port and screened for helium. If less than 10 percent helium is detected in the Tedlar® bag, the sample will be submitted to the laboratory for analysis. If greater than 10 percent helium is detected in the Tedlar® bag, the sample will not be analyzed. The sub-slab vapor port will be removed and reinstalled following the procedures detailed above. The sub-slab vapor port will then be leak tested and re-sampled.

Groundwater Assessment

USEPA also has requested that additional groundwater sampling be conducted in the residential neighborhood north of the facility to further assess VOC concentrations. ARCADIS proposes to install and sample six Vertical Aquifer Profiling (VAP) borings as shown on Figure 1. The purpose of these VAP borings is to further evaluate the stratification of VOC concentrations in the groundwater of the upper aquifer. Groundwater samples collected in the fall of 2012 and the spring of 2013 from sample locations WL-1, WL-2, WL-6, WL-10, WL-11, WL-12, WL-13, WL-15, WL-16, WL-17, and TW-18S/D indicated that VOC detections, if any, at or near the groundwater table are very low, with VOC concentrations increasing with depth. ARCADIS will evaluate the data from the new borings. The extent of VOCs in groundwater will be assessed and considered in the context of the MLE approach to determine whether supplemental VI assessments are needed.

Vertical Aquifer Profiling (VAP) Boring Installation and Sampling

A truck mounted Geoprobe® rig will be used to advance the six VAP borings to a depth of approximately 40 feet below ground surface (bgs). Beginning at the groundwater table (anticipated to be encountered approximately 10 to 12 feet bgs), ARCADIS will collect a grab groundwater sample at first encountered groundwater, then at 5-foot intervals to a total depth of approximately 40 feet bgs. After the samples have been collected, the Geoprobe boreholes will be properly abandoned.

As required by state law, ARCADIS will initiate the call-before-you-dig procedure at least 48 hours before the investigation is conducted to determine the location of utilities. Furthermore, a utility locate company (GPRS) will be utilized to assist in identifying the utilities in the vicinity. The VAP grab groundwater samples will be collected in a manner that will minimize interference and/or cross-impacts from the various vertical water-bearing zones within the upper aquifer. Duplicate, trip blank, and matrix spike/matrix spike duplicate samples will be collected during the sampling event for QA/QC purposes.

Groundwater Sample Laboratory Analysis

Groundwater samples will be shipped on ice under proper chain-of-custody to TestAmerica Laboratory for analysis of the following parameters:

VOCs (USEPA Method 8260):

- Trichloroethene (TCE)
- cis-1,2-Dichloroethene (Cis-1,2-DCE)
- Vinyl Chloride (VC)
- 1,2-Dichloroethane
- 1,1,-Dichloroethene

- 1,1,2-Trichloroethane
- Tetrachloroethene (PCE)
- Chloroethane
- Methylene chloride
- Acetone
- Carbon Disulfide
- 1,1-Dichloroethane
- Trans-1,2-Dichloroethene
- 1,1,1-Trichloroethane
- 1,2-Dichloropropane
- Benzene
- Toluene
- Ethylbenzene
- Xylenes (total)

Data Evaluation and Reporting

Upon receiving the air data, which should be available approximately 14 days after completion of sampling, the analytical package will be reviewed for completeness. Once reviewed, the data package will be shared with the USEPA. The data obtained from this VI assessment will be evaluated and compared to the calculated Vapor Intrusion Screening Levels. Any additional sampling beyond what is described in this IMWP will be based on the data evaluation. The evaluation will use the MLE approach described in the *USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015). Additionally, data will be evaluated against indoor air background concentrations as identified in the *Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion* (USEPA 2011). Data from the background ambient air samples collected during the event will assist in the MLE evaluation. If the evaluation of the initial and seasonal sampling events indicate that the VI pathway is incomplete, additional VI evaluation is not warranted.

Groundwater data will also be evaluated upon receipt and reviewed for completeness. The data will be summarized and the data package will be shared with the USEPA.

ARCADIS will prepare a Summary Report of the results from this assessment for Grenada Manufacturing to submit to the USEPA. Communication of the sample results to the residential property owners will be handled by the USEPA.

Schedule

Upon receiving the executed access agreements, personnel will mobilize to the area to conduct the structure reconnaissance and the sampling. In the event that potential source materials are found, they will be removed or isolated and the structure will be allowed to ventilate for approximately 24 hours. Installation and sampling of the soil gas ports are expected to take approximately 3 days. Installation of the sub-slab sample ports will take approximately 1 hour per structure. Indoor air sampling will take approximately 24 hours per structure. Assuming all activities can be coordinated during a single mobilization, the sampling effort will take approximately 7 to 8 days to complete. The groundwater sampling is anticipated to take an additional 5 to 6 days to complete and likely will occur under a separate mobilization. Data will be available approximately 14 days after completion of each of the sampling events.

Closing

If you have any questions regarding this IMWP, please do not hesitate to contact us at 225-292-1004.

Sincerely,

ARCADIS U.S., Inc.

I have reviewed this document in sufficient depth to accept full responsibility for its contents.

George E. Cook, RPG
Staff Geologist
Mississippi Registration Number 0889

John Ellis
Certified Project Manager

Attachments

Copies:
Steven Sharp – ARCADIS

Figure

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) LD:(B.ALTOM) PIC:(P.WAGNER) PM:(S.SHARP) TM:(M.HEAP)
PROJECT: IN000899.DWD PATH: G:\GIS\MERITORMS_GRENADA_ICE\MAPDOCS\2015\REV INTERIM WP\F1 ICE_RIMWP SITE MAP.MXD DATE SAVED: 8/27/2015 8:08:00 AM BY: BALTOM

PROJECTION: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, July 2014).

LEGEND

- Site Boundary
- 100-foot radius
- Monitoring Well
- Temporary Sampling Point
- Stratigraphy Boring
- Soil-Gas Port
- Waterloo Profile
- Proposed Residential Vapor Intrusion (VI) Sample
- Proposed Soil-Gas Port
- Proposed Ambient-Air Sample
- Proposed Vertical Aquifer Profile Sample

NOTE: All locations are approximate.

0 120 240
SCALE IN FEET

GRENADA MANUFACTURING, LLC
GRENADA, MISSISSIPPI

REVISED INTERIM MEASURES WORK PLAN

Site Map

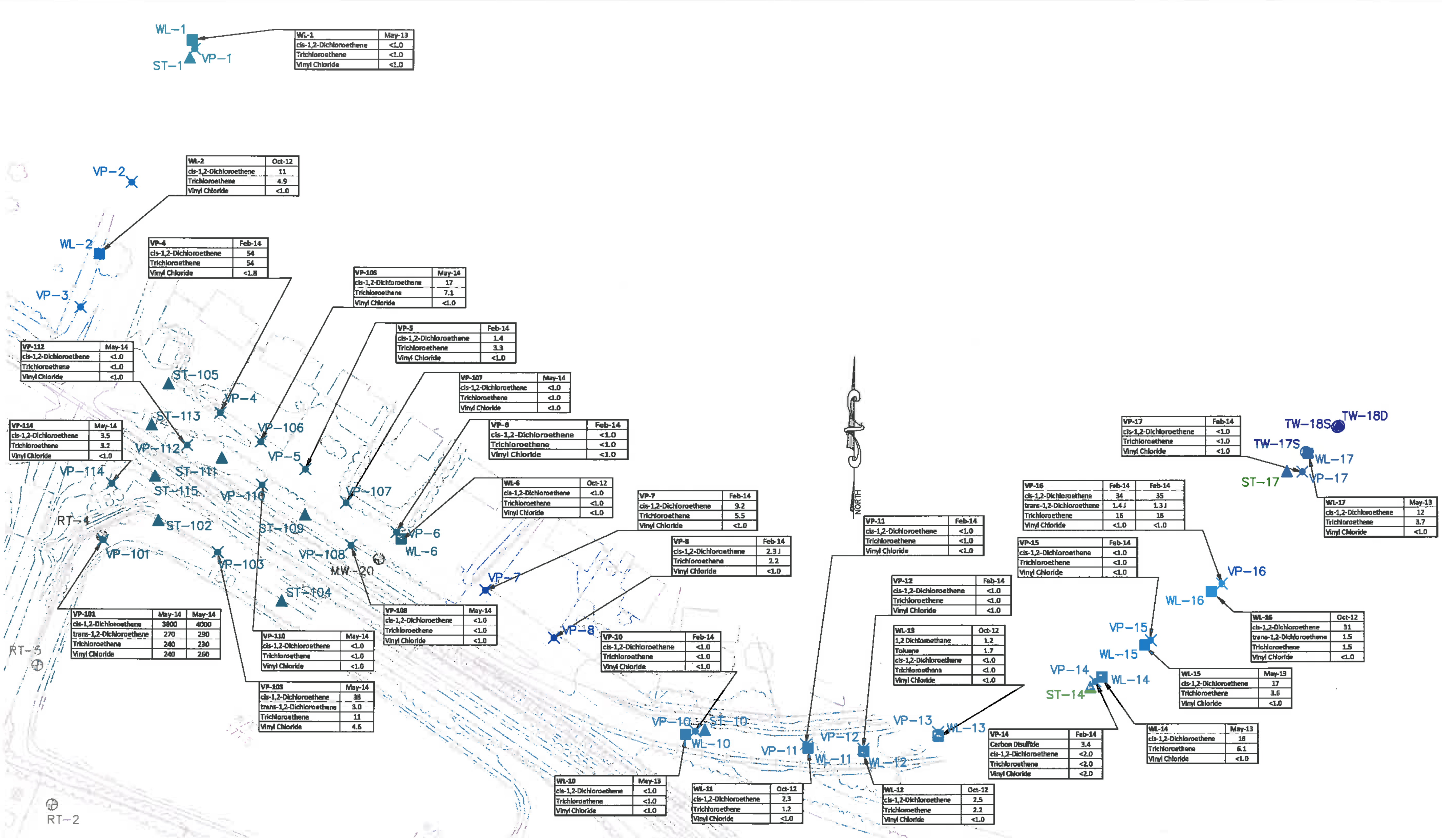
ARCADIS

FIGURE
1

ARCADIS

Attachment A

Groundwater Analytical Data Figure



WL-1	May-13
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-2	Oct-12
cis-1,2-Dichloroethene	11
Trichloroethene	4.9
Vinyl Chloride	<1.0

VP-4	Feb-14
cis-1,2-Dichloroethene	54
Trichloroethene	54
Vinyl Chloride	<1.8

VP-106	May-14
cis-1,2-Dichloroethene	17
Trichloroethene	7.1
Vinyl Chloride	<1.0

VP-5	Feb-14
cis-1,2-Dichloroethene	1.4
Trichloroethene	3.3
Vinyl Chloride	<1.0

VP-112	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-107	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-114	May-14
cis-1,2-Dichloroethene	3.5
Trichloroethene	3.2
Vinyl Chloride	<1.0

VP-6	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-6	Oct-12
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-7	Feb-14
cis-1,2-Dichloroethene	9.2
Trichloroethene	5.5
Vinyl Chloride	<1.0

VP-8	Feb-14
cis-1,2-Dichloroethene	2.3 J
Trichloroethene	2.2
Vinyl Chloride	<1.0

VP-101	May-14	May-14
cis-1,2-Dichloroethene	3800	4000
trans-1,2-Dichloroethene	270	290
Trichloroethene	240	230
Vinyl Chloride	240	260

VP-108	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-110	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-10	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-103	May-14
cis-1,2-Dichloroethene	38
trans-1,2-Dichloroethene	3.0
Trichloroethene	11
Vinyl Chloride	4.6

WL-10	May-13
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-11	Oct-12
cis-1,2-Dichloroethene	2.3
Trichloroethene	1.2
Vinyl Chloride	<1.0

VP-11	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-12	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-13	Oct-12
1,2 Dichloroethane	1.2
Toluene	1.7
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-12	Oct-12
cis-1,2-Dichloroethene	2.5
Trichloroethene	2.2
Vinyl Chloride	<1.0

VP-14	Feb-14
Carbon Disulfide	3.4
cis-1,2-Dichloroethene	<2.0
Trichloroethene	<2.0
Vinyl Chloride	<2.0

WL-14	May-13
cis-1,2-Dichloroethene	16
Trichloroethene	6.1
Vinyl Chloride	<1.0

VP-15	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-15	May-13
cis-1,2-Dichloroethene	17
Trichloroethene	3.6
Vinyl Chloride	<1.0

VP-16	Feb-14	Feb-14
cis-1,2-Dichloroethene	34	35
trans-1,2-Dichloroethene	1.4 J	1.3 J
Trichloroethene	16	16
Vinyl Chloride	<1.0	<1.0

WL-16	Oct-12
cis-1,2-Dichloroethene	31
trans-1,2-Dichloroethene	1.5
Trichloroethene	1.5
Vinyl Chloride	<1.0

VP-17	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-17	May-13
cis-1,2-Dichloroethene	12
Trichloroethene	3.7
Vinyl Chloride	<1.0

ALL RESULTS REPORTED AS µg/L

0 100 200

SCALE IN FEET

LEGEND:

VP-12 VAPOR PROBE

WL-16 WATERLOO PROFILE (SAMPLE COLLECTED CLOSEST TO WATER TABLE)

TW-17S TEMPORARY WELL

ST-17 STRATIGRAPHY BORING

MW-20 EXISTING MONITORING WELL

T&M ASSOCIATES
4675 LAKEHURST COURT
SUITE 250
COLUMBUS, OHIO 43016
TEL 614-339-3380
WWW.TANDMASSOCIATES.COM

MERITOR, INC.

GRENADA MANUFACTURING, LLC PLANT
GRENADA, MISSISSIPPI

GROUNDWATER ANALYTICAL DATA
SHALLOW/WATER TABLE

NO.	DATE	REVISIONS	BY	CHECKED

PROJECT NO.	DATE 12/16/13
SCALE 1"=100'	CADD FILE
DESIGNED BY	DWG PATH
CHECKED BY JP	DRAWN BY BF
FIGURE X	

Attachment B

Building Survey and Product Inventory Form

Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: ___________________________________

Date/Time Prepared: ________________________________

Preparer's Affiliation: _______________________________

Phone No.: ____

Purpose of Investigation: ____

1. OCCUPANT:

Interviewed: Y / N

Last Name: ________________________ First Name: ________________________

Address: ____

County: __________________________________

Home Phone: ______________________ Office Phone: _______________________

Number of Occupants/Persons at this Location: ________________

Age of Occupants: _____________________

2. OWNER OR LANDLORD: (Check if Same as Occupant ___)

Interviewed: Y / N

Last Name: ________________________ First Name: ________________________

Address: ____

County: ________________________________

Home Phone: ___________________ Office Phone: ___________________

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _________________

If the Property is Residential, Type? (circle appropriate response)

Ranch		2-Family 3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_______________

If Multiple Units, How Many? ___________

If the Property is Commercial, Type?

Business Type(s) _____________________________________

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _________

Other Characteristics:

Number of Floors______ Building Age______

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

____

____

____

Airflow Near Source

____

____

____

Outdoor Air Infiltration

____

____

____

Infiltration Into Air Ducts

____

____

____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS: (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone	brick
b.	**Basement type:**	full	crawlspace	slab	other ________
c.	**Basement floor:**	concrete	dirt	stone	other ________
d.	**Basement floor:**	uncovered	covered	covered with ______________	
e.	**Concrete floor:**	unsealed	sealed	sealed with _______________	
f.	**Foundation walls:**	poured	block stone	other ____________________	
g.	**Foundation walls:**	unsealed	sealed	sealed with _______________	
h.	**The basement is:**	wet	damp	dry	moldy
i.	**The basement is:**	finished	unfinished	partially finished	

j. Sump present? Y / N

k. Water in sump? Y / N / NA

Basement/lowest level depth below grade: ________(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

____

____

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N

6. HEATING, VENTILATING, AND AIR CONDITIONING: (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard
Space heaters	Stream radiation	Radiant floor
Electric baseboard	Wood stove	Outdoor wood boiler
Other __________		

The primary type of fuel used is:

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal		

Domestic hot water tank fueled by: ____________________________

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other___________
Air conditioning:	Central Air	Window Units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

7. OCCUPANCY:

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement ____

1st Floor ____

2nd Floor ____

3rd Floor ____

4th Floor ____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?

Y / N / NA Please specify: ____

d. Has the building ever had a fire? Y / N When? ______________________________

e. Is a kerosene or unvented gas space heater present? Y / N Where? ____________________

f. Is there a workshop or hobby/craft area? Y / N Where & Type? __________________

g. Is there smoking in the building? Y / N How frequently? ____________________________

h. Have cleaning products been used recently? Y / N When & Type? ___________________

i. Have cosmetic products been used recently? Y / N When & Type? ___________________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____________

k**. Is there new carpet, drapes or other textiles? Y / N Where & When?** ________________

l. Have air fresheners been used recently? Y / N When & Type? ________________________

m. Is there a kitchen exhaust fan? Y / N If yes, where ___________________________

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_________________________

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?_______________________

q. Are there odors in the building? Y / N

If yes, please describe: ____

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

If yes, what types of solvents are used? ____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: ____________________

Is the system active or passive? Active/Passive

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ______________________________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): _________________

____

Heavy vehicle traffic nearby (or other mobile sources): _______________________________

9. WATER AND SEWAGE:

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _______

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _______

10. RELOCATION INFORMATION: (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: ________________________________

____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS:

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:

12. OUTDOOR PLOT:

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s), and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

13. PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ____

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/carpet, nail polish/hairspray/cologne).

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y/N

Grenada Manufacturing, LLC

635 Hwy 332
Grenada, Ms 38901

662-226-1161
662-226-1166 Fax

Via Electronic Mail and Overnight Delivery

September 11, 2015

Mr. Brian Bastek (bastek.brian@epa.gov)
RCRA Corrective Action and Permitting Section
RCRA Cleanup and Brownfields Branch
U.S. Environmental Protection Agency
Region 4, Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Re: Submission of Final Revised Interim Measures Work Plan
EPA HSWA Permit No. MSD 007 037 278, July 29, 2010
Grenada Manufacturing, LLC, Grenada, Mississippi

Dear Mr. Bastek:

On behalf of Grenada Manufacturing, LLC, I have enclosed the Final Revised Interim Measures Work Plan requested in your letter of September 4, 2015. The revisions address the comments provided in the letter as well as comments provided during discussions with the agency. Mr. John Ellis of ARCADIS U.S., Inc., will continue to serve as the Project Manager on this matter.

Please do not hesitate to contact Mr. Ellis at 225-292-1004 if you have any questions regarding the enclosed work plan.

Sincerely,

Grenada Manufacturing, LLC
c/o Mr. Donald Williams
635 Highway 332
Grenada, MS 38901

Enclosure

cc: Ms. Carla Brown, Mississippi Department of Environmental Quality
Mr. John Ellis, ARCADIS U.S., Inc.

ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana
Tel 225-292-1004
Fax 225-218-9677
www.arcadis-us.com

Mr. Donald Williams
Grenada Manufacturing, LLC
635 Highway 332
Grenada, Mississippi 38901

ENVIRONMENT

Subject:
Final Revised Interim Measures Work Plan – Vapor Intrusion Assessment
Grenada Manufacturing, LLC, Grenada, Mississippi.
Permit No. MSD 007 037 278

Date:
September 11, 2015

Contact:
John Ellis

Extension:
208

Email:
john.ellis@arcadis-us.com

Our ref:
IN000899.0013.00001
Grenada/IN899.13/C/1/bbn

Dear Mr. Williams:

ARCADIS is pleased to provide this Final Revised Interim Measures Work Plan (IMWP) to Grenada Manufacturing, LLC (Grenada Manufacturing) for its facility located in Grenada, Mississippi, detailing the proposed Vapor Intrusion (VI) Assessment and supplemental soil and groundwater sampling. The revisions to the IMWP incorporate comments provided by the U.S. Environmental Protection Agency (USEPA). This IMWP has been prepared in response to the June 30, 2015, August 20, 2015, and September 4, 2015, USEPA Region 4 letters to Grenada Manufacturing, in which the USEPA requested performance by Grenada Manufacturing of the tasks identified therein pursuant to the company's Hazardous and Solid Waste (HSWA) permit. The IMWP outlines screening, field work, laboratory analysis, data evaluation, and reporting proposed for the scope of work, which will be conducted in accordance with *the USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015) and, as appropriate, USEPA Region 4 protocols.

Background

The manufacturing facility was constructed by Lyon in 1961 and sold to Rockwell International Corporation (Rockwell) in 1966. Rockwell operated a wheel cover manufacturing facility from 1966 to 1985, when the plant and property were sold to Textron, Inc. (Textron), formerly Randall Textron. In 1999, Textron sold the operations and property to Grenada Manufacturing, who continued to operate the wheel cover plant until 2008 when portions of the property were leased to ICE Industries, Inc. (ICE). Following ICE's lease of the premises, the facility was converted to a stamping plant, providing stamp-formed parts for various industries.

During prior groundwater investigation activities performed at the facility, an elevated concentration of trichloroethylene (TCE) was detected in a groundwater sample collected from off-site Monitoring Well MW-20 in a May 2012 sampling event.

Seventeen soil gas ports (VP-1 through VP-17) were installed and sampled in 2013 to further investigate this area. An additional six soil gas ports (VP-101, VP-103, VP108, VP-110, VP112, and VP-114) were installed and sampled during May 2014.

Groundwater samples were also obtained in the fall of 2012 and the spring of 2013 from sample locations WL-1, WL-2, WL-6, WL-10, WL-11, WL-12, WL-13, WL-15, WL-16, WL-17, and TW-18S/D. The sample locations correspond to the soil gas ports (VPs) with the same number. Given the construction of the soil gas ports, groundwater is sometimes encountered in ports and water samples are collected. Water samples were collected from (VP-1, VP-2, VP-4, VP-5, VP-6, VP-7, VP-8, VP-10, VP-11, VP-12, VP-14, VP-15, VP-16, VP-17, VP-101, VP-103, VP-106, VP-107, VP-108, VP-110, VP-112, and VP-114). The data and preliminary evaluation from the sampling were submitted to USEPA Region 4 in a letter dated January 17, 2014. A figure presenting the groundwater data obtained from the soil gas ports is provided in Attachment A. These data were collected using the methods described in the January 17, 2014, letter.

Figure 1 depicts the sample locations in relation to the off-site Monitoring Well MW-20 assessment area. The USEPA requested that Grenada Manufacturing prepare an IMWP to evaluate the potential VI pathway in the off-site area in a letter dated June 30, 2015. An IMWP was submitted on August 3, 2015. The USEPA provided comments on the IMWP in a letter dated August 20, 2015. A Revised IMWP was submitted to the USEPA on August 28, 2015. The USEPA provided additional comments in a letter dated September 4, 2015.

Scope of Work

In an effort to evaluate the potential VI pathway in the off-site area, additional air data will be collected. Samples collected will include:

- Soil gas
- Ambient air
- Indoor air from select residential buildings
- Sub-slab vapor from select residential buildings

A reconnaissance of any building where indoor air and sub-slab vapor samples will be collected will be conducted prior to sampling.

The USEPA has also requested that sampling of groundwater conditions in the upper aquifer be conducted. Additionally, the USEPA requested the collection of soil samples during the groundwater sampling.

Details on the sampling procedures and data evaluations are provided below.

Any additional sampling beyond what is described in this IMWP will be based on the data evaluation. The evaluation will use the multiple lines of evidence (MLE) approach described in the *USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015). If the evaluation indicates that the VI pathway is incomplete, additional VI evaluation is not warranted.

Soil Gas Assessment

ARCADIS proposes to install and sample eight shallow soil gas ports as shown on Figure 1. These eight proposed off-site locations will be installed in proximity to the existing deeper soil gas ports (VP-2 through VP-6, VP-13, and VP-17), including the ones with the elevated TCE concentrations. A desktop review of the available soil borings and geological cross-sections shows that an approximate 8- to 12-foot-thick surficial clay layer underlain by a sand layer is present in this area. The existing soil gas ports with detected volatile organic compound (VOC) concentrations were screened at the clay/sand interface or within the water-bearing sand layer. ARCADIS will use the data to evaluate the migration of concentrations detected in the previously installed soil gas ports.

Soil Gas Port Installation

A truck mounted Geoprobe® will be used to create an open borehole, and a 2.25-inch-diameter Macro-Core® sampler will be used to remove soil from the boring. As part of the reconnaissance, a utility locate will be requested to identify buried utilities in the vicinity of the structures and any proposed soil gas ports prior to intrusive activities. Soil will be classified in the field and certain soil samples may be collected from select borings for soil moisture analysis. Each of the soil gas ports will be installed to a depth of 6 feet below ground surface and will be screened from the 5.5-foot to 6-foot interval below ground surface. Soil gas ports will be constructed of 0.25-inch nylon tubing with 6-inch stainless steel screens. The screen will be installed with filter pack sand placed around the screen to 6 inches above the screen. Granular bentonite will be used to fill the remainder of the borehole above the screen filter pack to the surface and hydrated during installation. A protective cover will be installed at the surface. At the surface, the end of the tubing will be equipped with a Swagelok® fitting and a gas tight valve. Upon completion of the installation and sealing of each soil gas port, the volume of air in the sand pack will be calculated and approximately 3 times this volume of air will be purged using a low-flow air sampling pump set at a rate of 100 milliliters per minute (mL/min).

Soil Gas Port Sampling

A minimum of 24 hours after installation, each soil gas port will be sampled using 1-liter polished stainless steel SUMMA® canisters with calibrated flow controllers that are cleaned and certified by the laboratory. The flow controllers will be calibrated for a sampling duration of 10 minutes (≈ 80 mL/min). Approximately one to three times the dead volume of air will be purged at a rate of 100 mL/min prior to sampling using a low-flow air sampling pump. The amount and rate of dead volumes purged will be measured and recorded in the field and will remain consistent between sample locations. The sampling procedure consists of connecting the purge pump to the soil gas port, then turning it on, then opening the soil gas port valve to purge the tubing. At completion of purging, the valve on the soil gas port will be closed, the purge pump removed, and then the sampling canister and flow controller will be connected to the soil gas port. The sampling canister will be opened and then the valve on the soil gas port will be opened. At the completion of sampling, the canister will be closed first and then the soil gas port valve. A final canister vacuum between 2 and 5 inches of mercury will signify that sample collection is complete. At the completion of each sample collection, the Summa canisters will be closed and sealed with a brass Swagelok® cap.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) will be collected before and during sampling activities.

Residential VI Assessment

In addition to the supplemental soil gas investigation, ARCADIS proposes to complete VI sampling at six residential properties located on Lyon Drive (as shown on Figure 1). Work will be conducted in accordance with *the USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015).

The six residential structures on Lyon Drive have been selected based on their relative proximity to known groundwater impacts (MW-20) and potential soil gas impacts (VP-2, VP-3, VP-5, VP-6). Only four of these structures are within 100 feet of the known groundwater or potential soil gas impacts (as shown on Figure 1). The other two properties, east and west of the potentially impacted area, are being assessed as a conservative measure. At this time, no preferential pathways have been identified in the area of potential impacts.

Community Outreach

Prior to engaging property owners regarding the residential VI sampling, the USEPA will conduct outreach with potentially affected community members. The purpose of this outreach will be to disseminate information regarding the Site history, constituents being assessed, vapor intrusion, sampling process, and obtaining access.

Residential VI sampling will be contingent on the USEPA obtaining approval and a signed access agreement from the property owners.

Reconnaissance of Structures

As recommended in USEPA guidance, prior to conducting sampling activities, a reconnaissance of the potentially affected structures will be performed. As appropriate, a visual inspection of the structure's interiors and exteriors will be performed to identify potential preferential pathways (such as utilities) to potential vapor migration into the structures and to identify any background sources or other factors that could affect the quality of indoor air. As part of the reconnaissance, information will be gathered from the homeowner on potential sources within each structure, ventilation systems, and building construction. A copy of the indoor air building survey and sampling form is provided in Attachment B. Identified potential background sources will be removed from the structure during the VI sampling event. Samples collected from the residential structures will be given a unique identification to conceal the identity of the sample locations.

Review of the Grenada County Assessor records indicates that the houses along Lyon Drive are single-story buildings with slab-on-grade construction (no basements) and are less than 1,500 square feet in size. Thus, paired indoor air and sub-slab sampling is recommended at each structure.

The USEPA will collect information on the residences in the community during their outreach campaign.

Indoor Air Sampling

Indoor air samples will be collected using 6-liter polished stainless steel SUMMA® canisters with calibrated flow controllers that are cleaned and certified by the laboratory. The canisters will utilize flow controllers calibrated for a 24-hour sample collection. During the collection process, the indoor air canister will be securely positioned at the breathing zone level for the most sensitive exposed population and located near the center of the structure. Because all six of the structures identified for the residential VI assessment are single-story, slab-on-grade construction and are less than 1,500 square feet in size, one indoor air sample location is appropriate. All indoor air samples will be collected under normal home conditions. A final canister vacuum on the flow controller between 2 and 5 inches of mercury will signify that sample collection is complete. At the completion of sampling, the canister will be closed and the flow controller removed. The canisters will be gauged with an independent gauge and the final vacuum recorded. The canister will then be closed and sealed with a brass Swagelok® cap.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) will be collected before and during sampling activities.

Ambient Air Sampling

Ambient air samples will be collected outdoors concurrently with indoor air samples to evaluate potential background contaminant sources from outside the structures. Ambient air samples will be collected using 6-liter polished stainless steel SUMMA® canisters with calibrated flow controllers that are cleaned and certified by the laboratory. The canisters will utilize flow controllers calibrated for a 24-hour sample collection. During the collection process, the sample canister will be securely positioned at breathing height (approximately 5 feet above the ground). It is anticipated that all structures will not be sampled at the same time. It is proposed that, instead of collecting ambient air samples at each structure location, ambient air samples be collected at strategic locations that cover multiple structures at once. One ambient air sample will be collected upwind of multiple groups of buildings. At this time, two ambient air sample locations are proposed (Figure 1). If multiple events are required to collect indoor air samples, additional ambient air samples will be collected during these events. The location of the ambient air sample will be determined based on wind direction at the time of sampling and the forecasted wind direction.

The ambient air sample canister will be placed so as to minimize potential contamination from extraneous sources. The canister will be positioned away from wind shields such as trees or bushes and at least 15 feet away from any buildings. Collection of the ambient air sample will follow the same methodology as described for indoor air samples.

Sub-Slab Port Installation

In accordance with USEPA guidance, a permanent sub-slab vapor port will be installed in the concrete floor near the center of the structure for collecting sub-slab vapor samples. The sub-slab ports will be placed in an unobtrusive location within the home to minimize disturbance of the residents. The home will be returned to its original condition to the extent possible. The ports will be installed after the collection of the indoor air sample from that structure. The sub-slab vapor ports will be designed to lie flush on the upper surface of the concrete floor and to “float” in the slab to enable collection of vapors from sub-slab material in direct contact with the slab or from a pocket of air directly beneath the slab created by sub-slab material subsidence. New stainless steel Vapor Pins™ will be utilized. The Vapor Pins™ will be preassembled for each installation prior to drilling through the floor to minimize exposure time of the sub-slab soils to an open hole.

To install a sub-slab vapor port, a rotary hammer drill will be used to drill a 1.125-inch-outer-diameter hole approximately 2 inches into the floor. The inside of the 1.125-inch-outer-diameter hole will be cleaned with a damp towel and then a 0.625-inch-outer-diameter hole will be drilled through the remainder of the concrete.

Once through the concrete, the drill will be allowed to penetrate an additional 2 to 3 inches into the sub-slab material. The outer-diameter hole will be cleaned once more with a damp towel. The Vapor Pins™ will be pressed into the concrete slab and sealed with the supplied non-volatile organic compound silicone sleeve. After the sub-slab vapor port is set, a small aliquot of air will be purged into a Tedlar® bag so as to not introduce potential vapors to the building interior. A protective cap will be placed on the end of the Vapor Pin™ and finished with a stainless steel thread-on flush-mount cover. Once the sub-slab vapor port is installed, it will be allowed to set for a minimum of 24-hours prior to sampling. These sub-slab vapor ports will remain in place after the initial sampling for use in future sampling events. After all sampling events have been completed, the sub-slab vapor ports will be removed, the holes will be patched, and the home will be returned to its original condition to the extent possible.

Sub-Slab Port Sampling

The sub-slab vapor samples will be collected using 1-liter polished stainless steel SUMMA® canisters that are cleaned and certified by the laboratory with a calibrated flow controller. The flow controller will be calibrated for a sampling duration of 10 minutes (≈80 mL/min). The sub-slab samples will be collected by assembling a short (≈16 inches) length of 0.25-inch-diameter nylon tubing fitted with stainless steel Swagelok® tube connectors at each end that connect directly to the sub-slab vapor port and the sampling canister. A stainless steel gas-tight valve will be installed near the canister end of the sample tubing. The sample assembly will be connected to the sub-slab vapor port and approximately three volumes of dead air will be purged from the sample assembly at a rate of approximately 100 mL/min prior to sampling using a 60-mL syringe into a Tedlar® bag so as to not introduce potential vapors to the building interior. The sampling canister will then be connected, opened, and then the valve on the sample assembly will be opened. A final canister vacuum on the flow controller between 2 and 5 inches of mercury will signify that sample collection is complete. At the completion of sampling, the canister will be closed first and then the sample assembly to the sub-slab vapor port valve. The canisters will be disconnected from the port and the flow controller removed. The canisters will be gauged with an independent gauge and the final vacuum recorded. The canister will then be closed and sealed with a brass Swagelok® cap.

Meteorological data (temperature, precipitation, humidity, barometric pressure, and wind speed/direction) will be collected before and during sampling activities.

Residential VI Seasonal Sampling

In accordance with USEPA guidance, multiple VI sampling events will be performed to demonstrate that the VI pathway is not complete. Thus, a second seasonal sampling event will be performed in the opposite season as the initial sampling event. The seasonal sampling event will follow the procedures detailed above for soil gas, sub-slab, indoor air, and ambient air sampling.

Air Sample Laboratory Analysis

Air samples will be analyzed for the following VOCs:

- 1,1-Dichloroethene (1,1-DCE)
- 1,2-Dichloroethane (1,2-DCA)
- cis-1,2-Dichloroethene (cis-1,2-DCE)
- trans-1,2-Chloroethene (trans-1,2-DCE)
- Tetrachloroethene (PCE)
- 1,1,2-Trichloroethane (1,1,2-TCA)
- Trichloroethene (TCE)
- Vinyl chloride
- Benzene
- Toluene
- Ethylbenzene*
- Xylenes*
- 1,2,4-Trimethylbenzene
- Chloroform
- Methylene chloride

*Ethylbenzene and xylenes are being analyzed at USEPA's request to evaluate background concentrations in the structures that are being sampled.

Analysis of the air samples will use USEPA Compendium Method TO-15. Sample media will be ordered from Eurofins Air Toxics, Inc. (Eurofins) in Folsom, California, using proper quality assurance/quality control (QA/QC) procedures and chain-of-custody protocols. Analysis of air samples will also be conducted by Eurofins. Analytical results will be reported in concentration units of parts per million by volume (ppmv) and micrograms per cubic meter (µg/m3). Eurofins will be instructed to report data with constituent detection limits at or below screening levels. To minimize potential effects on the sample integrity, samples will be shipped within 24 hours following collection and the samples will not be chilled during storage. To improve the confidence in measured concentrations, a duplicate sample will be collected and analyzed for the same parameters as the parent samples. Duplicate samples will be collected by connecting two canisters together so that they have the same intake port. One duplicate sample will be collected per 20 samples of each media sampled, with the exception of the ambient air (e.g., one duplicate soil gas sample, one duplicate sub-slab sample, and one indoor air sample).

Leak Testing

In accordance with USEPA guidance, leak testing will be performed on the soil gas and sub-slab vapor ports. Leak testing will be accomplished by enriching the atmosphere in the immediate vicinity of the area where the port intersects the ground with a tracer gas and measure a vapor sample from the port for the presence of high concentrations (>10 percent) of the tracer gas. A shroud consisting of a 1-gallon container equipped with two gas valves will be placed over the sub-slab vapor ports and sealed to the ground with modeling clay. The tubing assembly will be passed through the shroud to the outside through a hole that will then be sealed with modeling clay. A cylinder of laboratory-grade compressed helium gas will be connected to one gas valve, and helium will be introduced to the shroud at a slow rate in order to not pressurize the shroud. A Dielectric MGD-2002 Helium Detector (or equivalent) will be used to measure the amount of helium in the shroud by inserting the detector probe into the second gas valve in the shroud. Once a minimum of 60 percent helium is detected in the shroud, the port will then be purged and the purged air will be collected in a Tedlar® bag. The helium detector will then be used to screen the sample aliquot in the Tedlar® bag. If less than 10 percent helium is detected in the Tedlar® bag, a SUMMA® canister will then be attached to the tubing assembly and the sample collected while the helium concentration within the shroud is maintained at a minimum of 60 percent. At the completion of the sample collection, an aliquot of air will be purged again from the port and screened for helium. If less than 10 percent helium is detected in the Tedlar® bag, the sample will be submitted to the laboratory for analysis. If greater than 10 percent helium is detected in the Tedlar® bag, the sample will not be analyzed. The sub-slab vapor port will be removed and reinstalled following the procedures detailed above. The sub-slab vapor port will then be leak tested and re-sampled.

Groundwater Sampling

The USEPA also has requested that additional groundwater sampling be conducted in the residential neighborhood north of the facility to assess the constituent concentrations. At the request of the USEPA, ten locations were selected. ARCADIS will install and sample ten Vertical Aquifer Profiling (VAP) borings as shown on Figure 1 to further evaluate the stratification of constituent concentrations in the groundwater of the upper aquifer. Groundwater samples collected in the fall of 2012 and the spring of 2013 from sample locations WL-1, WL-2, WL-6, WL-10, WL-11, WL-12, WL-13, WL-15, WL-16, WL-17, and TW-18S/D indicated that VOC detections, if any, at or near the groundwater table are very low, with VOC concentrations increasing with depth. ARCADIS will evaluate the data from the new borings. The extent of VOCs in groundwater will be assessed and considered in the context of the MLE approach to determine whether supplemental VI assessments are needed. At USEPA's request, other constituents will also be evaluated.

Vertical Aquifer Profiling (VAP) Boring Installation and Sampling

A truck-mounted Geoprobe® rig will be used to advance the ten VAP borings to a depth of approximately 50 feet below ground surface (bgs) or refusal. This depth is the approximate base of the upper aquifer. Beginning at the groundwater table (anticipated to be encountered approximately 10 to 12 feet bgs), ARCADIS will collect a grab groundwater sample at first encountered groundwater, then at 5-foot intervals to a total depth of approximately 50 feet bgs. After the samples have been collected, the Geoprobe® boreholes will be properly abandoned.

As required by state law, ARCADIS will initiate the call-before-you-dig procedure at least 48 hours before the investigation is conducted to determine the location of utilities. Furthermore, a utility locate company (GPRS) will be utilized to assist in identifying the utilities in the vicinity. The VAP grab groundwater samples will be collected in a manner that will minimize interference and/or cross-impacts from the various vertical water-bearing zones within the upper aquifer. Duplicate, trip blank, and matrix spike/matrix spike duplicate samples will be collected during the sampling event for QA/QC purposes.

Groundwater Sample Laboratory Analysis

Groundwater samples will be shipped on ice under proper chain-of-custody to TestAmerica Laboratory for analysis of the following parameters:

VOCs (USEPA Method 8260)

SVOCs (USEPA Method 8270)

Metals:

- Total Metals (RCRA metals plus Nickle and Zinc) (USEPA Method 6020)
- Hexavalent chromium (USEPA Method 7196)

Groundwater samples for metals analysis will be filtered in the field or at the laboratory using a 0.45-micron filter. Filtering will be necessary because the groundwater samples are being collected from temporary points.

Soil Sampling

The USEPA has requested that soil samples be collected during the groundwater assessment activities. As specified in the September 4, 2015, USEPA comment letter, a lithologic description will be prepared for all borings and an organic vapor analyzer (OVA) will be used to field screen soil from the boreholes. A single soil sample will be collected from each borehole and will correspond to the interval with the highest measured OVA reading.

Soil Boring Installation and Sampling

The soil sampling activities will be conducted with the truck-mounted Geoprobe® unit that will be utilized during the VAP sampling. The soil borings will be co-located with or adjacent to the VAP locations. A soil coring device with a new acetate sleeve will be driven into the ground by the Geoprobe® unit and retrieved to the surface. Upon retrieval of the soil core and removal from the acetate sleeve, a qualified geologist will conduct a visual inspection of the core. The following information will be recorded on Sample/Core logs, which will be prepared for each location:

- Major soil type and percentage;
- Composition of the soil;
- Moisture, texture, and color of the soil;
- Other geologic observations such as bedding characteristics, structure and orientation, and primary and secondary permeability/porosity (if possible); and
- Observations on drilling progress including sample interval loss and recovery.

The soil core will be screened in the field using an OVA (e.g., photoionization detector [PID] or flame ionization detector [FID]) to document the levels of organic vapors present. To collect volatile organic headspace readings, a portion of the soil core will be placed in a sealed plastic bag. The bag will be placed in a dry area and allowed to warm to ambient temperatures. After a minimum of 10 minutes, the OVA will be inserted into the bag to measure the vapors that have accumulated. OVA readings will be recorded on the Sample/Core Log. The soil interval in the zone above the water table (vadose zone) exhibiting the highest OVA reading in each borehole will be selected for sampling. VOC samples will be collected directly from the target depth interval of the soil core to minimize disturbance using an EnCore™ sampler or equivalent (Terra Core). SVOC and metal samples will be collected in containers provided by the laboratory. Duplicate, trip blank, and matrix spike/matrix spike duplicate samples will also be collected during the sampling event for QA/QC purposes. If no OVA readings are obtained above background levels in a given soil boring within the vadose zone, a soil sample will be collected from the upper 5 feet of the boring.

Soil Sample Laboratory Analysis

Soil samples will be shipped on ice under proper chain-of-custody to TestAmerica Laboratory for analysis of the following parameters:

VOCs (USEPA Method 8260)

SVOCs (USEPA Method 8270)

Metals:

- Total Metals (RCRA metals plus Nickle and Zinc) (USEPA Method 6020)
- Hexavalent chromium (USEPA Method 7196)

<u>Data Evaluation and Reporting</u>

Upon receiving the air data, which should be available approximately 14 days after completion of sampling, the analytical package will be reviewed for completeness. Once reviewed, the data package will be shared with the USEPA. The data obtained from this VI assessment will be evaluated and compared to the calculated Vapor Intrusion Screening Levels. Any additional sampling beyond what is described in this IMWP will be based on the data evaluation. The evaluation will use the MLE approach described in the *USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA June 2015). Additionally, data will be evaluated against indoor air background concentrations as identified in the *Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion* (USEPA 2011). Data from the background ambient air samples collected during the event will assist in the MLE evaluation. If the evaluation of the initial and seasonal sampling events indicate that the VI pathway is incomplete, additional VI evaluation is not warranted.

Soil and groundwater data will also be evaluated upon receipt and reviewed for completeness. The data will be summarized and the electronic data package will be shared with the USEPA. The electronic format will be compatible with the USEPA's EQuIS system. The need for additional sampling will be evaluated with the USEPA.

Data validation will be conducted on the air samples collected during this assessment. Soil and groundwater data validation will be conducted in accordance with procedures described in the Quality Assurance Project Plan for the site monitoring program previously approved by the USEPA.

ARCADIS will prepare a Summary Report of the results from this assessment for Grenada Manufacturing to submit to the USEPA. Communication of the sample results to the residential property owners will be handled by the USEPA.

<u>Schedule</u>

Upon receiving the executed access agreements, personnel will mobilize to the area to conduct the structure reconnaissance and the sampling. In the event that potential source materials are found, they will be removed or isolated and the structure will be allowed to ventilate for approximately 24 hours. Installation and sampling of the soil gas ports are expected to take approximately 3 days. Installation of the sub-slab sample ports will take approximately 1 hour per structure. Indoor air sampling will take approximately 24 hours per structure. This sampling effort will take approximately 3 to 5 days to complete, assuming all access agreements are in place. The soil and groundwater sampling is anticipated to take an additional 10 to 15 days to complete and likely will occur under a separate mobilization. Data will be available to the USEPA approximately 30 days following sample collection.

Closing

If you have any questions regarding this IMWP, please do not hesitate to contact us at 225-292-1004.

Sincerely,

ARCADIS U.S., Inc.

I have reviewed this document in sufficient depth to accept full responsibility for its contents.

George E. Cook, RPG
Staff Geologist
Mississippi Registration Number 0889

John Ellis
Certified Project Manager

Attachments

Copies:
Steven Sharp – ARCADIS

Figure

LEGEND

- Site Boundary
- 100-foot radius
- Monitoring Well
- Temporary Monitoring Well
- Stratigraphy Boring
- Soil-Gas Port
- Waterloo Profile
- Proposed Residential Vapor Intrusion (VI) Sample
- Proposed Soil-Gas Port
- Proposed Ambient-Air Sample
- Proposed Vertical Aquifer Profile Sample

NOTE: All locations are approximate.

0 160 320

SCALE IN FEET

PROJECTION: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
AERIAL SOURCE: ESRI Online Imagery (NAIP, July 2014).

GRENADA MANUFACTURING, LLC
GRENADA, MISSISSIPPI

REVISED INTERIM MEASURES WORK PLAN

Site Map

ARCADIS

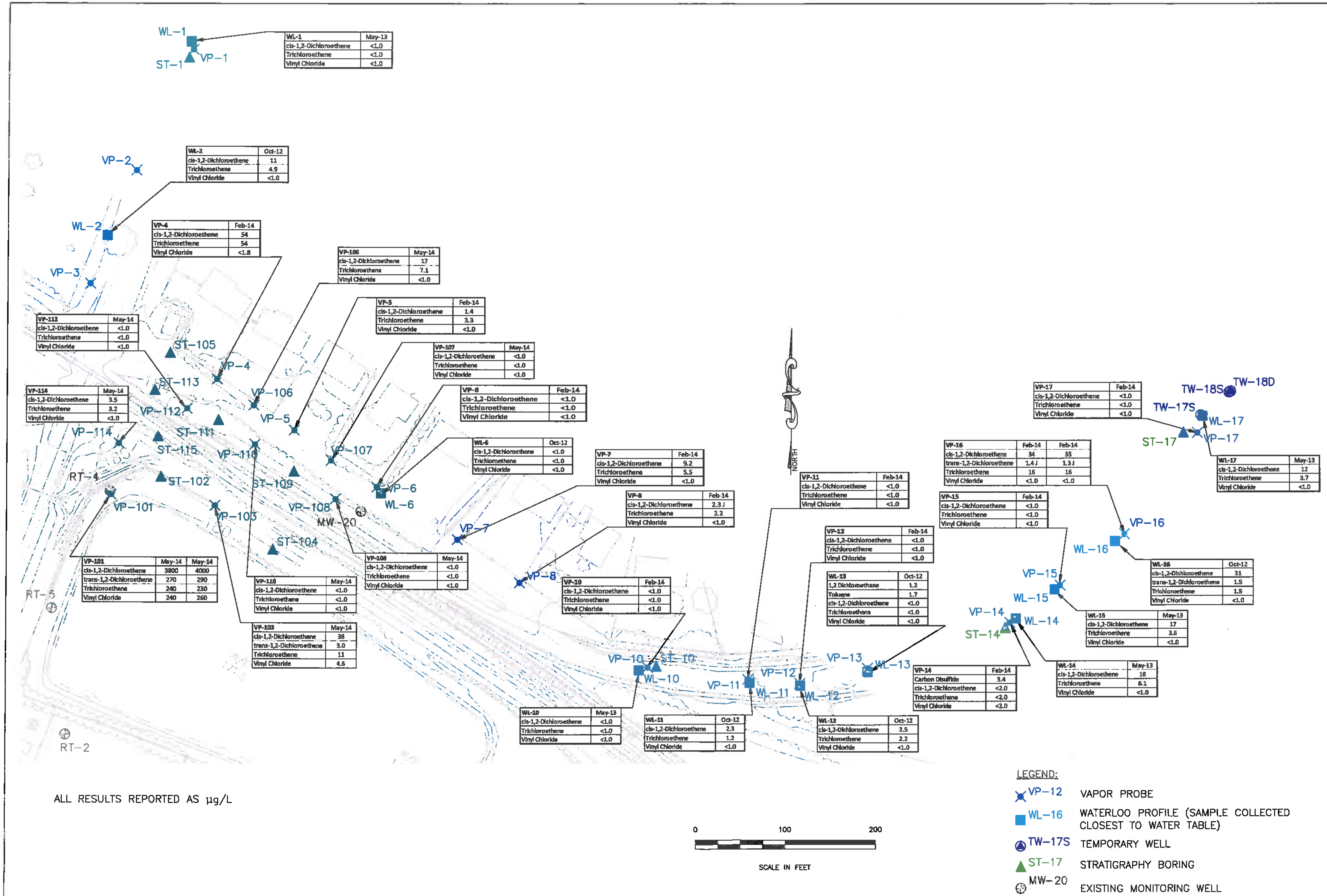
FIGURE **1**

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) LD:(B.ALTOM) PIC:(P.WAGNER) PM:(S.SHARP) TM:(M.HEAP)
PROJECT: IN000899.DWD PATH: G:\GIS\MERITORMS_GRENADA_ICE\MAPDOCS\2015\REV INTERIM WP\F1 ICE_RIMWP SITE MAP V2.MXD DATE SAVED: 9/10/2015 11:27:56 AM BY: BALTOM

ARCADIS

Attachment A

Groundwater Analytical Data Figure



WL-1	May-13
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-2	Oct-12
cis-1,2-Dichloroethene	11
Trichloroethene	4.9
Vinyl Chloride	<1.0

VP-4	Feb-14
cis-1,2-Dichloroethene	54
Trichloroethene	54
Vinyl Chloride	<1.8

VP-106	May-14
cis-1,2-Dichloroethene	17
Trichloroethene	7.1
Vinyl Chloride	<1.0

VP-5	Feb-14
cis-1,2-Dichloroethene	1.4
Trichloroethene	3.3
Vinyl Chloride	<1.0

VP-112	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-107	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-114	May-14
cis-1,2-Dichloroethene	3.5
Trichloroethene	3.2
Vinyl Chloride	<1.0

VP-6	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-6	Oct-12
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-7	Feb-14
cis-1,2-Dichloroethene	9.2
Trichloroethene	5.5
Vinyl Chloride	<1.0

VP-8	Feb-14
cis-1,2-Dichloroethene	2.3 J
Trichloroethene	2.2
Vinyl Chloride	<1.0

VP-101	May-14	May-14
cis-1,2-Dichloroethene	3800	4000
trans-1,2-Dichloroethene	270	290
Trichloroethene	240	230
Vinyl Chloride	240	260

VP-108	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-110	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-10	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-103	May-14
cis-1,2-Dichloroethene	38
trans-1,2-Dichloroethene	3.0
Trichloroethene	11
Vinyl Chloride	4.6

WL-10	May-13
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-11	Oct-12
cis-1,2-Dichloroethene	2.3
Trichloroethene	1.2
Vinyl Chloride	<1.0

VP-11	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-12	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-13	Oct-12
1,2 Dichloroethane	1.2
Toluene	1.7
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-12	Oct-12
cis-1,2-Dichloroethene	2.5
Trichloroethene	2.2
Vinyl Chloride	<1.0

VP-14	Feb-14
Carbon Disulfide	3.4
cis-1,2-Dichloroethene	<2.0
Trichloroethene	<2.0
Vinyl Chloride	<2.0

VP-16	Feb-14	Feb-14
cis-1,2-Dichloroethene	34	35
trans-1,2-Dichloroethene	1.4 J	1.3 J
Trichloroethene	16	16
Vinyl Chloride	<1.0	<1.0

VP-15	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-14	May-13
cis-1,2-Dichloroethene	16
Trichloroethene	6.1
Vinyl Chloride	<1.0

WL-15	May-13
cis-1,2-Dichloroethene	17
Trichloroethene	3.6
Vinyl Chloride	<1.0

WL-16	Oct-12
cis-1,2-Dichloroethene	31
trans-1,2-Dichloroethene	1.5
Trichloroethene	1.5
Vinyl Chloride	<1.0

VP-17	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-17	May-13
cis-1,2-Dichloroethene	12
Trichloroethene	3.7
Vinyl Chloride	<1.0

ALL RESULTS REPORTED AS μg/L

LEGEND:

VP-12 VAPOR PROBE

WL-16 WATERLOO PROFILE (SAMPLE COLLECTED CLOSEST TO WATER TABLE)

TW-17S TEMPORARY WELL

ST-17 STRATIGRAPHY BORING

MW-20 EXISTING MONITORING WELL

T&M ASSOCIATES
4675 LAKEHURST COURT
SUITE 250
COLUMBUS, OHIO 43016
TEL 614-339-3380
WWW.TANDMASSOCIATES.COM

MERITOR, INC.

GRENADA MANUFACTURING, LLC PLANT

GRENADA, MISSISSIPPI

GROUNDWATER ANALYTICAL DATA
SHALLOW/WATER TABLE

REVISIONS

NO. | DATE | BY | CHECKED

PROJECT NO.	DATE 12/16/13
SCALE 1"=100'	CADD FILE
DESIGNED BY	DWG PATH
CHECKED BY JP	DRAWN BY BF

FIGURE

X

Attachment B

Building Survey and Product Inventory Form

Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: ____________________________________

Date/Time Prepared: _________________________________

Preparer's Affiliation: ________________________________

Phone No.: ____

Purpose of Investigation: ____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _________________________ First Name: _________________________

Address: ____

County: ___________________________________

Home Phone: _______________________ Office Phone: ________________________

Number of Occupants/Persons at this Location: _________________

Age of Occupants: ______________________

2. OWNER OR LANDLORD: (Check if Same as Occupant ___)

Interviewed: Y / N

Last Name: _________________________ First Name: _________________________

Address: ____

County: _________________________________

Home Phone: ____________________ Office Phone: ____________________

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _________________

If the Property is Residential, Type? (circle appropriate response)

Ranch		2-Family 3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_______________

If Multiple Units, How Many? ___________

If the Property is Commercial, Type?

Business Type(s) _____________________________________

Does it include residences (i.e., multi-use)? Y / N   If yes, how many? _________

Other Characteristics:

Number of Floors______   Building Age______

Is the Building Insulated? Y / N   How Air-Tight?   Tight / Average / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

____

____

____

Airflow Near Source

____

____

Outdoor Air Infiltration

____

____

Infiltration Into Air Ducts

____

____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS: (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick
b.	**Basement type:**	full	crawlspace	slab other ________
c.	**Basement floor:**	concrete	dirt	stone other ________
d.	**Basement floor:**	uncovered	covered	covered with ________________
e.	**Concrete floor:**	unsealed	sealed	sealed with _________________
f.	**Foundation walls:**	poured	block stone	other _______________________
g.	**Foundation walls:**	unsealed	sealed	sealed with _________________
h.	**The basement is:**	wet	damp	dry moldy
i.	**The basement is:**	finished	unfinished	partially finished

j. Sump present? Y / N

k. Water in sump? Y / N / NA

Basement/lowest level depth below grade: ________(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

____

____

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N

6. HEATING, VENTILATING, AND AIR CONDITIONING: (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard
Space heaters	Stream radiation	Radiant floor
Electric baseboard	Wood stove	Outdoor wood boiler
Other __________		

The primary type of fuel used is:

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal		

Domestic hot water tank fueled by: ____________________________

Boiler/furnace located in: Basement Outdoors Main Floor Other___________

Air conditioning: Central Air Window Units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

7. OCCUPANCY:

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement ____

1st Floor ____

2nd Floor ____

3rd Floor ____

4th Floor ____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?

Y / N / NA Please specify: ____________________________________

d. Has the building ever had a fire? Y / N When? ______________________

e. Is a kerosene or unvented gas space heater present? Y / N Where? ______________

f. Is there a workshop or hobby/craft area? Y / N Where & Type? ____________

g. Is there smoking in the building? Y / N How frequently? ____________________

h. Have cleaning products been used recently? Y / N When & Type? _____________

i. Have cosmetic products been used recently? Y / N When & Type? _____________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _________

k**. Is there new carpet, drapes or other textiles? Y / N Where & When?** ____________

l. Have air fresheners been used recently? Y / N When & Type? _________________

m. Is there a kitchen exhaust fan? Y / N If yes, where ___________________

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_________________

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?________________

q. Are there odors in the building? Y / N

If yes, please describe: ____

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

If yes, what types of solvents are used? ____________________________________

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: _________________

Is the system active or passive? Active/Passive

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify _________________________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): _______________

____

Heavy vehicle traffic nearby (or other mobile sources): ___________________________

9. WATER AND SEWAGE:

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _______

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _______

10. RELOCATION INFORMATION: (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: ___________________________________

____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS:

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:

12. OUTDOOR PLOT:

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s), and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

13. PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ____

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y/N

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 4, 2015

Grenada Manufacturing, LLC.
c/o John Ellis
ARCADIS U.S., Inc.
10352 Plaza Americana
Baton Rouge, LA 70816

SUBJ: Conditional Approval for Vapor Intrusion Assessment - Interim Measures Work Plan
Grenada Manufacturing, LLC
MSD 007 037 278
Grenada, Mississippi

Dear Mr. Ellis:

The EPA has reviewed the Grenada Manufacturing, LLC (Grenada) revised draft Vapor Intrusion (VI) Interim Measures Work Plan (IMWP). This work plan is approved with the following conditions listed below. Meredith Anderson and I discussed these items with you on Tuesday, September 1, 2015.

As we stated during our conversation, several items still need to be included or modified in the work plan and are summarized as follows:

- Consistent with the *USEPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (USEPA, June 2015), along with soil gas, sub-slab, indoor, and ambient air sampling, groundwater sampling is an important component of a VI investigation. Though the revised work plan included 6 sampling locations, the EPA had asked for a minimum of 10. The program feels that at least 10 will be necessary to determine the nature and extent of groundwater contamination. As discussed, a minimum of 4 additional wells should be located along the northern perimeter of the neighborhood, as well as in the interior. The lithology at all geoprobe borings should be identified and logged by a professional geologist. OVA readings should be obtained and a soil sample should be collected and analyzed at the location of the highest OVA readings. All soil and groundwater samples should be analyzed for VOCs, SVOCs, and metals (including speciated chromium) using SW846 methods.

- All sampling and analysis activities for this VI study should be conducted in accordance with the appropriate EPA Region 4 protocols (http://www.epa.gov/region4/sesd/fbqstp/index.html).

- All sub-slab sampling ports will be installed in a discrete location within the home to minimize disturbance, and the home will be returned to its original condition, to the extent possible.

- Based on the review of groundwater and air (soil gas, sub-slab, indoor, and ambient) data from the initial 2 seasonal sampling events, it may be necessary to conduct additional groundwater and air sampling to provide adequate multiple lines of evidence to determine the presence or absence of a complete VI pathway. This determination will be made by the EPA and will be communicated promptly to the permittee.

- All data from this investigation should be submitted promptly to the EPA in an electronic format using the EPA's Equis system.

- The EPA requests that the permittee and their consultants participate in outreach activities in the community, as needed, and support the production of outreach materials.

- Upon request, comprehensive data validation procedures will be performed on all data obtained from this investigation.

Due to the potentially very serious human health concerns, please update the latest draft VI IMWP previously submitted to the EPA and re-submit a final VI IMWP to the EPA by September 10, 2015, so that sampling can begin no later than the week of September 21, 2015. You may contact me at 404-562-8511 if you any questions about the contents of this letter.

Sincerely,

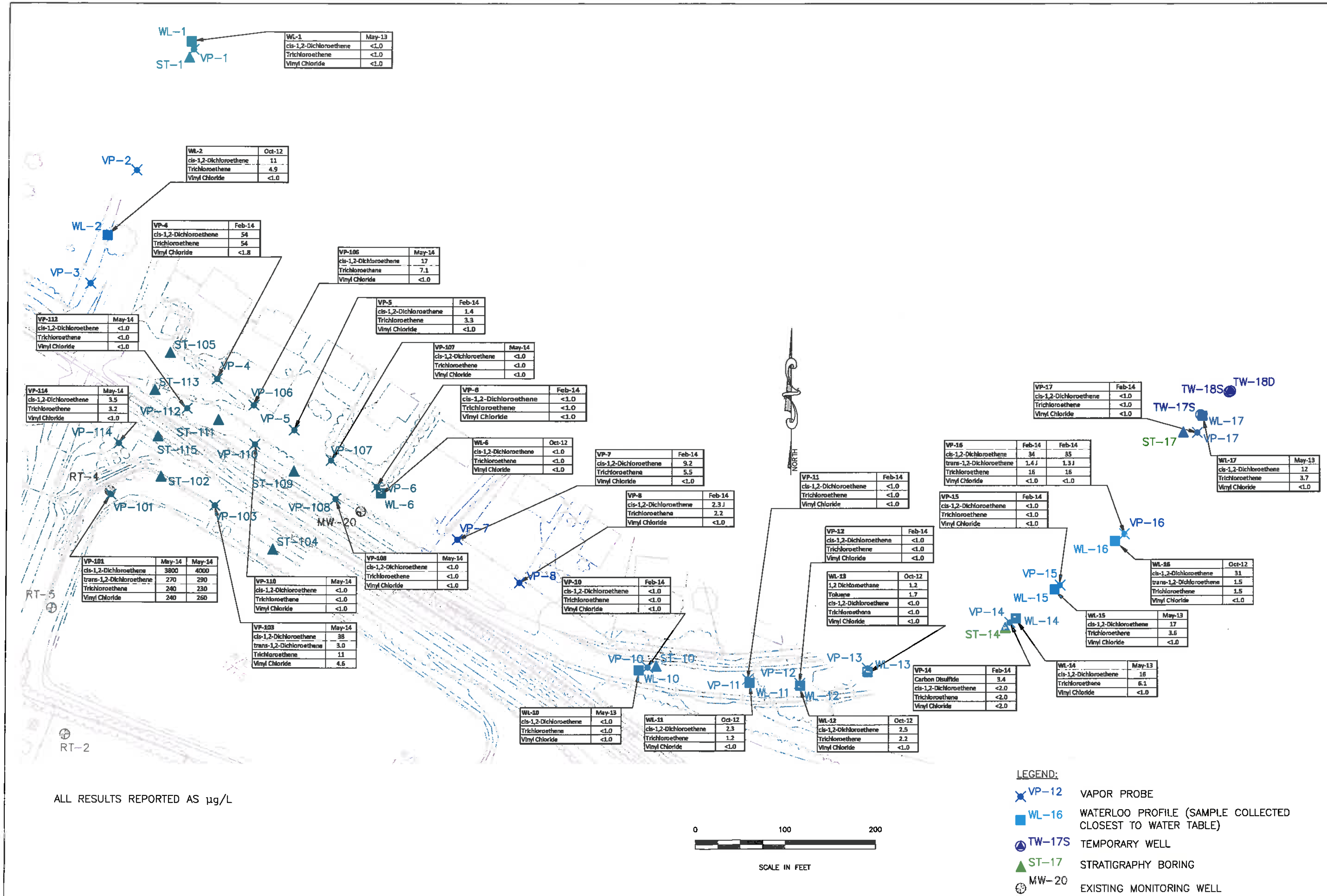
John E. Johnston for BB

Brian Bastek
RCRA Corrective Action and Permitting Section
Resource Conservation and Restoration Division

cc: Carla Brown, MDEQ
Donald Williams, Grenada Manufacturing, LLC

APPENDIX B

T&M Associates Groundwater Analytical Results 2012-2014



WL-1	May-13
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-2	Oct-12
cis-1,2-Dichloroethene	11
Trichloroethene	4.9
Vinyl Chloride	<1.0

VP-4	Feb-14
cis-1,2-Dichloroethene	54
Trichloroethene	54
Vinyl Chloride	<1.8

VP-106	May-14
cis-1,2-Dichloroethene	17
Trichloroethene	7.1
Vinyl Chloride	<1.0

VP-5	Feb-14
cis-1,2-Dichloroethene	1.4
Trichloroethene	3.3
Vinyl Chloride	<1.0

VP-112	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-107	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-114	May-14
cis-1,2-Dichloroethene	3.5
Trichloroethene	3.2
Vinyl Chloride	<1.0

VP-6	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-6	Oct-12
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-7	Feb-14
cis-1,2-Dichloroethene	9.2
Trichloroethene	5.5
Vinyl Chloride	<1.0

VP-8	Feb-14
cis-1,2-Dichloroethene	2.3 J
Trichloroethene	2.2
Vinyl Chloride	<1.0

VP-101	May-14	May-14
cis-1,2-Dichloroethene	3800	4000
trans-1,2-Dichloroethene	270	290
Trichloroethene	240	230
Vinyl Chloride	240	260

VP-108	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-110	May-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-10	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-103	May-14
cis-1,2-Dichloroethene	38
trans-1,2-Dichloroethene	3.0
Trichloroethene	11
Vinyl Chloride	4.6

WL-10	May-13
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-11	Oct-12
cis-1,2-Dichloroethene	2.3
Trichloroethene	1.2
Vinyl Chloride	<1.0

VP-11	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-12	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-13	Oct-12
1,2 Dichloroethane	1.2
Toluene	1.7
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-12	Oct-12
cis-1,2-Dichloroethene	2.5
Trichloroethene	2.2
Vinyl Chloride	<1.0

VP-14	Feb-14
Carbon Disulfide	3.4
cis-1,2-Dichloroethene	<2.0
Trichloroethene	<2.0
Vinyl Chloride	<2.0

VP-16	Feb-14	Feb-14
cis-1,2-Dichloroethene	34	35
trans-1,2-Dichloroethene	1.4 J	1.3 J
Trichloroethene	16	16
Vinyl Chloride	<1.0	<1.0

VP-15	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

VP-17	Feb-14
cis-1,2-Dichloroethene	<1.0
Trichloroethene	<1.0
Vinyl Chloride	<1.0

WL-17	May-13
cis-1,2-Dichloroethene	12
Trichloroethene	3.7
Vinyl Chloride	<1.0

WL-16	Oct-12
cis-1,2-Dichloroethene	31
trans-1,2-Dichloroethene	1.5
Trichloroethene	1.5
Vinyl Chloride	<1.0

WL-15	May-13
cis-1,2-Dichloroethene	17
Trichloroethene	3.6
Vinyl Chloride	<1.0

WL-14	May-13
cis-1,2-Dichloroethene	16
Trichloroethene	6.1
Vinyl Chloride	<1.0

ALL RESULTS REPORTED AS µg/L

LEGEND:

VP-12	VAPOR PROBE
WL-16	WATERLOO PROFILE (SAMPLE COLLECTED CLOSEST TO WATER TABLE)
TW-17S	TEMPORARY WELL
ST-17	STRATIGRAPHY BORING
MW-20	EXISTING MONITORING WELL

T&M ASSOCIATES
4675 LAKEHURST COURT
SUITE 250
COLUMBUS, OHIO 43016
TEL 614-339-3380
WWW.TANDMASSOCIATES.COM

MERITOR, INC.

GRENADA MANUFACTURING, LLC PLANT
GRENADA, MISSISSIPPI

GROUNDWATER ANALYTICAL DATA
SHALLOW/WATER TABLE

NO.	DATE	REVISIONS	BY	CHECKED

PROJECT NO.	DATE 12/16/13
SCALE 1"=100'	CADD FILE
DESIGNED BY	DWG PATH
CHECKED BY JP	DRAWN BY BF
FIGURE X	

APPENDIX C

Soil Gas Port Boring and Construction Logs

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-1 | Project/No.: Grenada Manufacturing / LA003307.0001 | Page 1 of 1

Site Location: Grenada, MS | Drilling Date/Time Started: 9/15/15 / 10:05 | Drilling Date/Time Completed: 9/15/2015

Drilling Contractor: Devonian Group | Driller: Lonny Gaudet

Drilling Fluid Used: None | Drilling Method: Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device: 5.0' / 3" | Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet | ☐ Surveyed | ☐ Estimated | Datum: NAD 83

Total Depth Drilled: 6.0 Feet | Hole Diameter: 3" | Coring Device: Hand Auger

Prepared By: Randall Woodruff | Hammer Weight: N/A | Hammer Drop: N/A ins.

GPS Coordinates: N/A

Sampling Data:

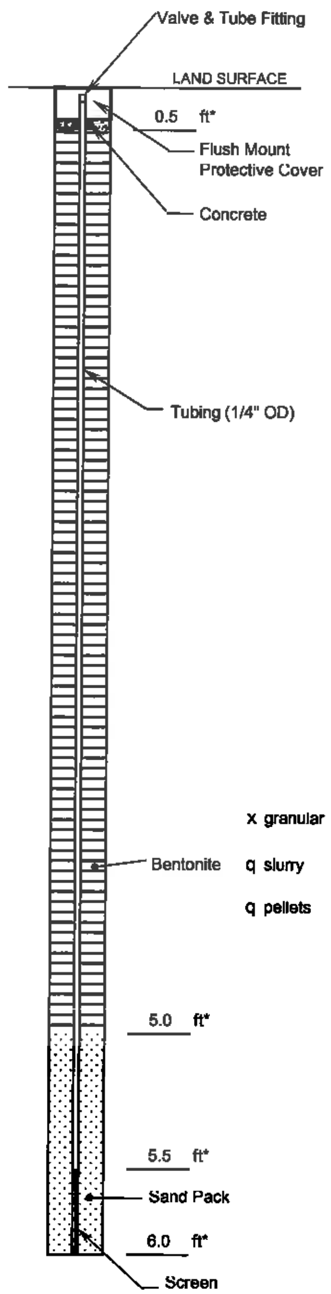
Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	5.0	100	--	--	0.0 - 6.0'	**Clay**, light brown, dry, friable, pebbles, trace oxidation staining, stiff; trace grey mottling
5.0	6.0	100	--	--		
						EOB @ 6.0'

ARCADIS Design & Consultancy for natural and built assets

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing Port: SG-1

City: Grenada

County: Grenada State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet

q Surveyed

q Estimated

Installation Date: 9/15/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - Inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-2 Project/No.: Grenada Manufacturing / LA003307.0001 Page 1 of 1

Site Location: Grenada, MS

Drilling Date/Time Started: 9/15/15 / 10:05 Drilling Date/Time Completed: 9/15/2015

Drilling Contractor: Devonian Group Driller: Lonny Gaudet

Drilling Fluid Used: None Drilling Method: Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device: 5.0' / 3" Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated Datum: NAD 83

Total Depth Drilled: 6.0 Feet Hole Diameter: 3" Coring Device: Hand Auger

Prepared By: Randall Woodruff Hammer Weight: N/A Hammer Drop: N/A ins.

GPS Coordinates: N/A

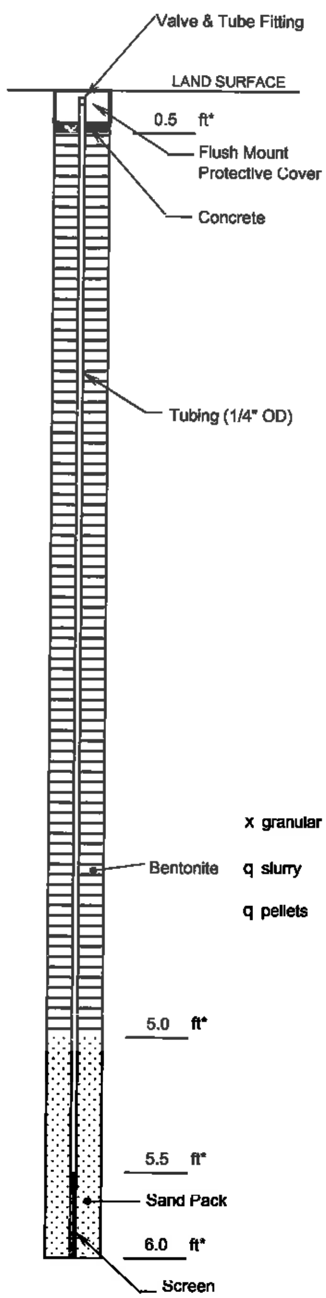
Sampling Data:

Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	5.0	100	--	--	0.0 - 6.0	Clay, light brown, dry, friable, pebbles, stiff
5.0	6.0	100	--	--		
						EOB @ 6.0'

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing   Port: SG-2

City: Grenada

County: Grenada   State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet   q Surveyed   q Estimated

Installation Date: 9/15/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - inches

Tubing:

Construction: Nylon

Diameter: 1/4 - inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-3 | Project/No.: Grenada Manufacturing / LA003307.0001 | Page 1 of 1

Site Location: Grenada, MS | Drilling Date/Time Started: 9/15/15 / 10:55 | Drilling Date/Time Completed: 9/15/2015

Drilling Contractor: Devonian Group | Driller: Lonny Gaudet

Drilling Fluid Used: None | Drilling Method: Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device: 5.0' / 3" | Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet | Surveyed | Estimated | Datum: NAD 83

Total Depth Drilled: 6.0 Feet | Hole Diameter: 3" | Coring Device: Hand Auger

Prepared By: Randall Woodruff | Hammer Weight: N/A | Hammer Drop: N/A ins.

GPS Coordinates: N/A

Sampling Data:

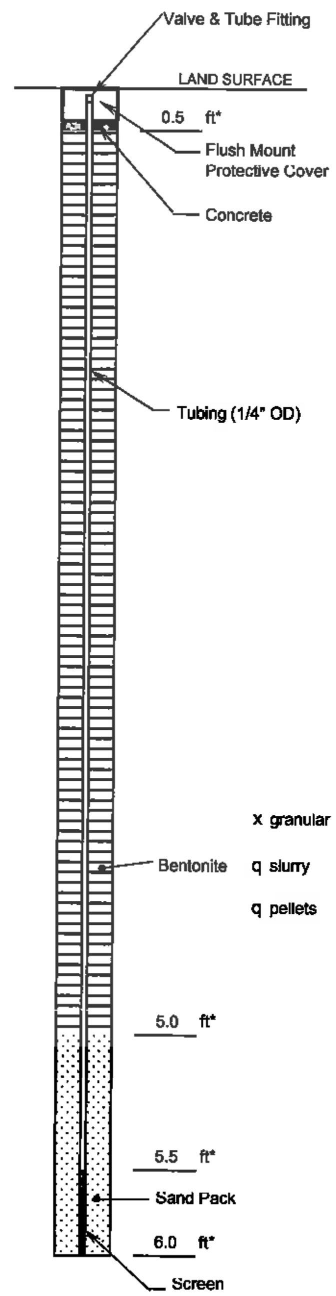
Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	5.0	100	--	--	0.0 - 0.25'	**Topsoil**, organics
5.0	6.0	100	--	--	0.25' - 6.0'	**Clay**, light brown, with trace oxidation staining, dry, friable, pebbles, stiff; gray mottling
						-slightly plastic and firm starting at 4.0', trace moisture
						-color change to brown starting at 5.0'
						EOB @ 6.0'

Design & Consultancy for natural and built assets

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing   Port: SG-3

City: Grenada

County: Grenada   State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet   q Surveyed   q Estimated

Installation Date: 9/15/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-4
Project/No.: Grenada Manufacturing / LA003307.0001
Page 1 of 1

Site Location: Grenada, MS
Drilling Date/Time Started: 9/15/15 / 11:25
Drilling Date/Time Completed: 9/15/2015

Drilling Contractor: Devonian Group
Driller: Lonny Gaudet

Drilling Fluid Used: None
Drilling Method: Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device: 5.0' / 3"
Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated
Datum: NAD 83

Total Depth Drilled: 6.0 Feet
Hole Diameter: 3"
Coring Device: Hand Auger

Prepared By: Randall Woodruff
Hammer Weight: N/A
Hammer Drop: N/A ins.

GPS Coordinates: N/A

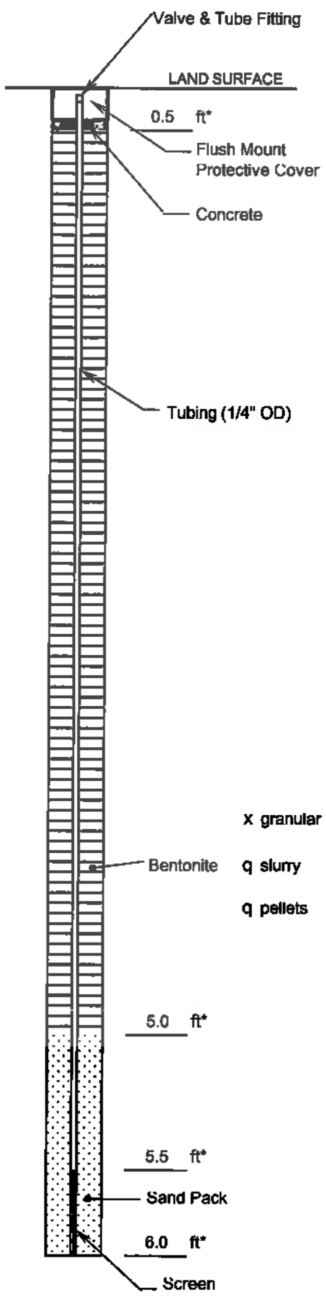
Sampling Data:

Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	5.0	100	--	--	0.0 - 0.25'	**Topsoil**, organics
5.0	6.0	100	--	--	0.25' - 6.0'	**Clay**, light brown, dry, friable, pebbles, stiff
						-firm, trace moisture starting at 5.0'; gray mottling
						EOB @6.0'

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing Port: SG-4

City: Grenada

County: Grenada State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet

q Surveyed

q Estimated

Installation Date: 9/15/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-5 | Project/No.: Grenada Manufacturing / LA003307.0001 | Page 1 of 1

Site Location: Grenada, MS

Drilling Date/Time Started: 9/15/15 / 11:30

Drilling Date/Time Completed: 9/15/2015

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Fluid Used: None

Drilling Method: Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device: 5.0' / 3"

Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated

Datum: NAD 83

Total Depth Drilled: 6.0 Feet

Hole Diameter: 3"

Coring Device: Hand Auger

Prepared By: Randall Woodruff

Hammer Weight: N/A

Hammer Drop: N/A ins.

GPS Coordinates: N/A

Sampling Data:

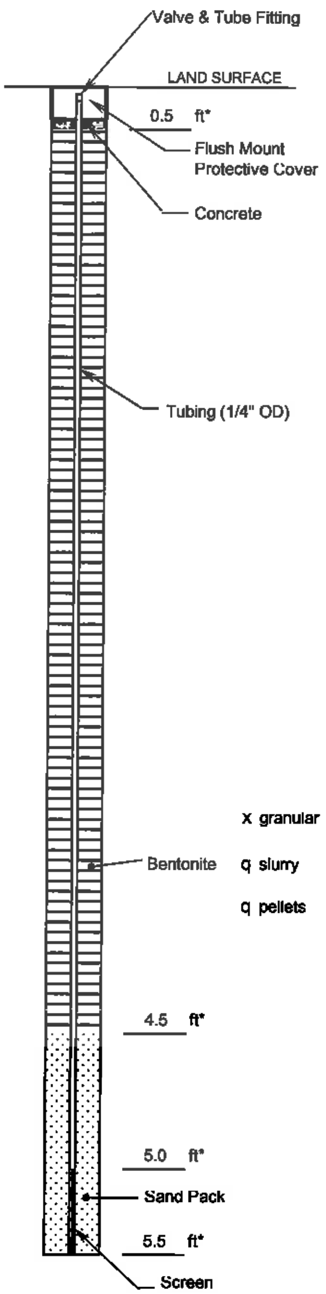
Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	5.0	100	--	--	0.0 - 0.25'	**Topsoil**, organics
5.0	6.0	100	--	--	0.25' - 6.0'	**Clay**, brown to light brown, dry, friable, pebbles, stiff
						-soft clay from 5.6' to 5.8'; slightly moist
						EOB @ 6.0'

ARCADIS Design & Consultancy for natural and built assets

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing Port: SG-5

City: Grenada

County: Grenada State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet q Surveyed q Estimated

Installation Date: 9/15/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well SG-6 Project/No. Grenada Manufacturing / LA003307.0001 Page 1 of 1

Site Location Grenada, MS

Drilling Date/Time Started 9/15/15 / 11:40

Drilling Date/Time Completed 9/15/2015

Drilling Contractor Devonian Group

Driller Lonny Gaudet

Drilling Fluid Used None

Drilling Method Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device 5.0' / 3"

Sampling Interval 1.0 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated

Datum NAD 83

Total Depth Drilled 6.0 Feet

Hole Diameter 3"

Coring Device Hand Auger

Prepared By Randall Woodruff

Hammer Weight N/A

Hammer Drop N/A Ins.

GPS Coordinates N/A

Sampling Data:

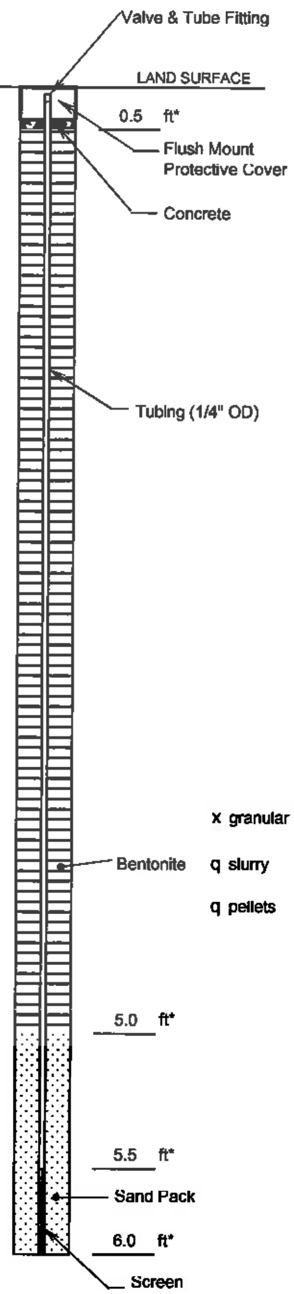
Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	5.0	100	--	--	0.0 - 0.25'	**Topsoil,** organics
5.0	6.0	100	--	--	0.25' - 6.0'	**Clay,** light brown with gray mottling dry, friable, pebbles, stiff
						EOB @ 6.0'

Design & Consultancy for natural and built assets

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing Port: SG-6

City: Grenada

County: Grenada State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet

q Surveyed

q Estimated

Installation Date: 9/15/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - Inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: **Stainless Steel Swagelok Tube Fitting**

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-7
Project/No.: Grenada Manufacturing / LA003307.0001
Page 1 of 1

Site Location: Grenada, MS
Drilling Date/Time Started: 9/16/15 / 09:50
Drilling Date/Time Completed: 9/16/2015

Drilling Contractor: Devonian Group
Driller: Lonny Gaudet

Drilling Fluid Used: None
Drilling Method: Hand auger

Length and Diameter of Coring Device: 5.0' / 3"
Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated
Datum: NAD 83

Total Depth Drilled: 4.0 Feet
Hole Diameter: 3"
Coring Device: Hand Auger

Prepared By: Randall Woodruff
Hammer Weight: N/A
Hammer Drop: N/A ins.

GPS Coordinates: N/A

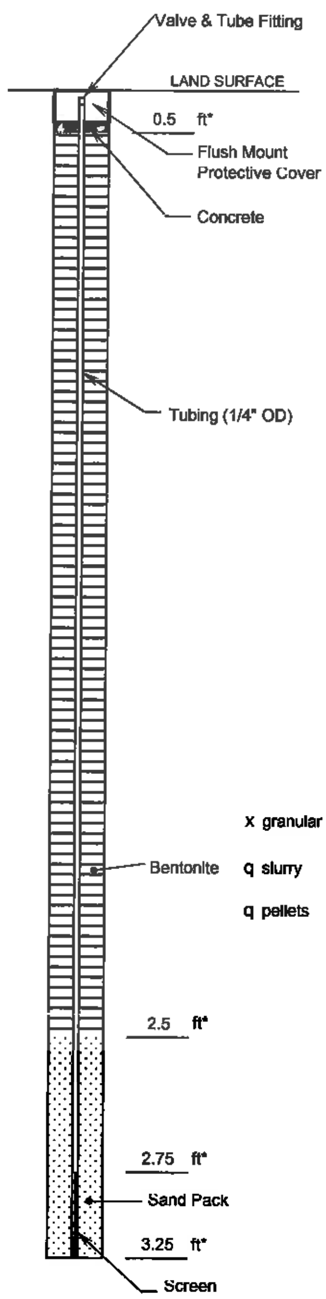
Sampling Data:

Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	4.0	100	--	--	0.0 - 0.25'	**Gravel, organics, clay**
					0.25' - 3.75'	**Clay,** light brown to brown, dry, friable, pebbles, stiff
						-slightly plactic starting at 3.5'; firm
					3.75' - 4.0'	**Sandy clay to clayey sand,** brown, slightly moist, trace pebbles, firm, cohesive to
						slightly plastic
						EOB @ 4.0'

SOIL GAS PORT CONSTRUCTION DIAGRAM



* Depth Below Land Surface

Project: Grenada Manufacturing　Port: SG-7

City: Grenada

County: Grenada　State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet　q Surveyed　q Estimated

Installation Date: 9/16/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

ARCADIS Design & Consultancy for natural and built assets

SOIL BORING / SAMPLING LOG

Boring/Well: SG-8
Project/No.: Grenada Manufacturing / LA003307.0001
Page 1 of 1

Site Location: Grenada, MS
Drilling Date/Time Started: 9/16/15 / 09:50
Drilling Date/Time Completed: 9/16/2015

Drilling Contractor: Devonian Group
Driller: Lonny Gaudet

Drilling Fluid Used: None
Drilling Method: Hand auger / Geoprobe-Macrocore

Length and Diameter of Coring Device: 5.0' / 3"
Sampling Interval: 1.0 feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated
Datum: NAD 83

Total Depth Drilled: 4.25 Feet
Hole Diameter: 3"
Coring Device: Hand Auger

Prepared By: Randall Woodruff
Hammer Weight: N/A
Hammer Drop: N/A ins.

GPS Coordinates: N/A

Sampling Data:

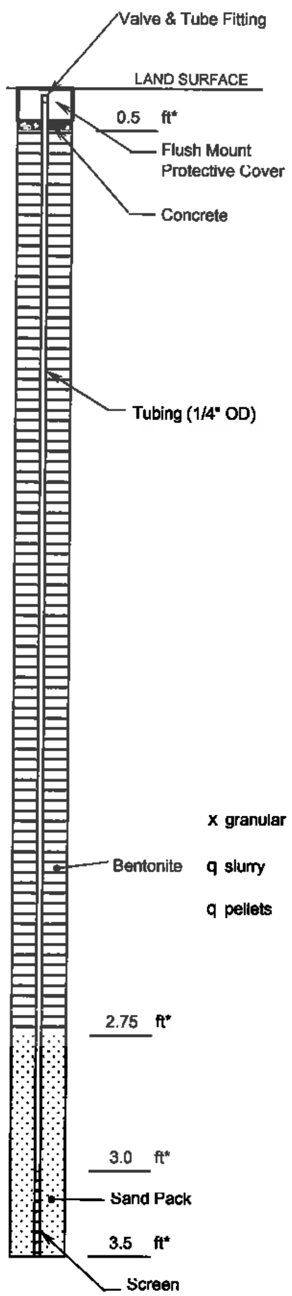
Depth	Grab/Composite	Time	QA/QC Samples	Laboratory Analysis
N/A				

Soil Characterization:

Sample/Core Depth (Feet bls) From	To	Core Recovery (%)	PID Reading (ppm)	Blow Counts per 6 Inches	Interval From - To (feet bgs)	Sample/Core Description
0.0	4.25	100	--	--	0.0 - 0.25'	**Topsoil, organics**
					0.25' - 4.0'	**Clay,** light brown, dry, friable, pebbles, stiff
					4.0' - 4.25'	**Sandy clay to clayey sand,** brown, slightly moist, trace pebbles, firm, cohesive to
						slightly plastic
						EOB @ 4.25'

ARCADIS Design & Consultancy for natural and built assets

SOIL GAS PORT CONSTRUCTION DIAGRAM



epth Below Land Surface

Project: Grenada Manufacturing Port: SG-8

City: Grenada

County: Grenada State: MS

GPS Coordinates:

Latitude: NA

Longitude: NA

Land-Surface Elevation and Datum:

NA feet

q Surveyed

q Estimated

Installation Date: 9/16/2015

Weather Conditions at Installation: Sunny, 85° F

Drilling Contractor: Devonian Group

Driller: Lonny Gaudet

Drilling Method: Hand Auger, Geoprobe - Macrocore

Screen:

Construction: Stainless Steel Mesh

Length: 6 - Inches

Tubing:

Construction: Nylon

Diameter: 1/4 - Inch OD

End Valve:

Type/Construction: Stainless Steel Ball Valve

End Connection: Stainless Steel Swagelok Tube Fitting

Remarks:

Prepared by: Randall Woodruff

APPENDIX D

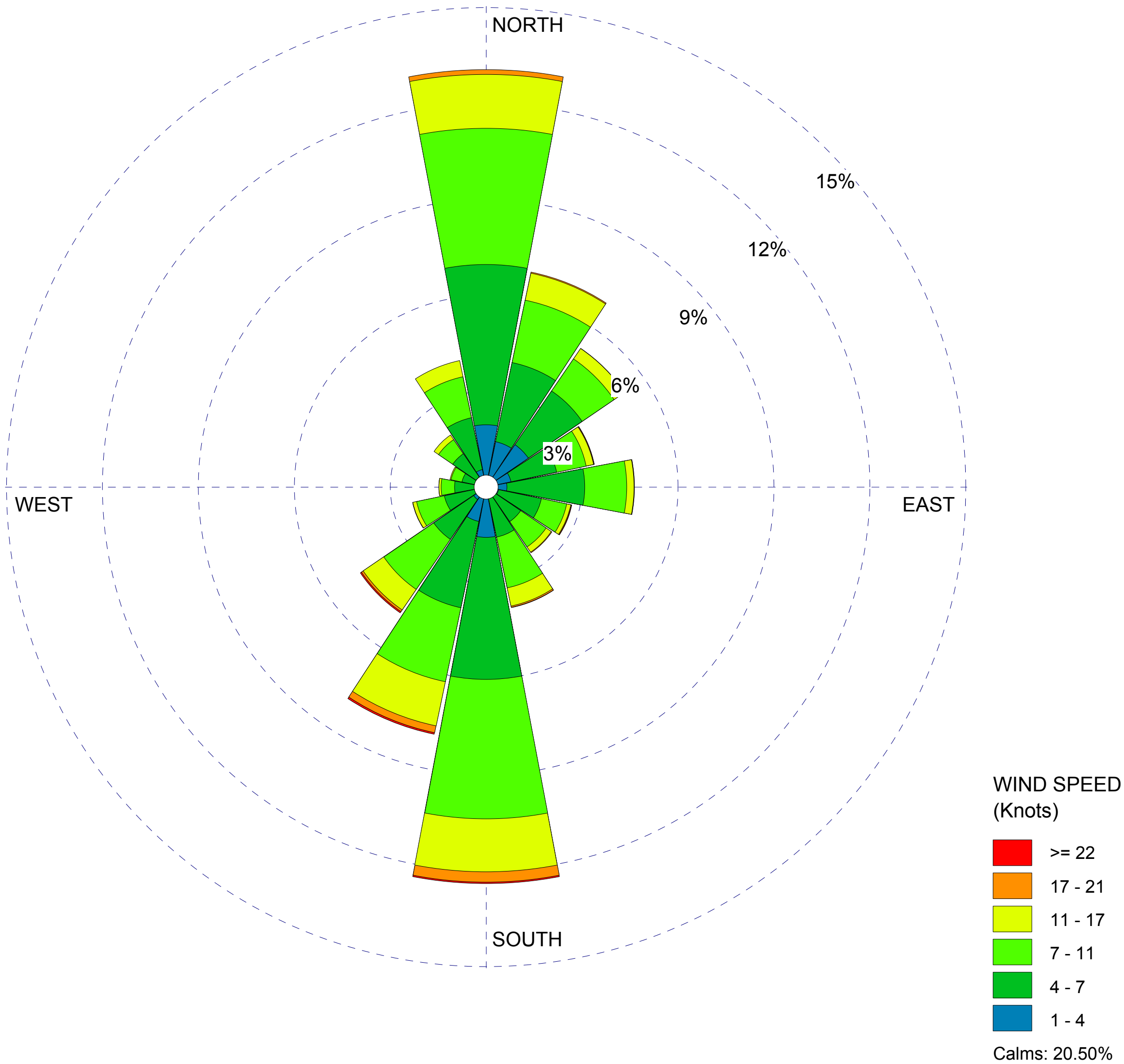
Meteorological Data

WIND ROSE PLOT:

Station #13978

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 9/1/2014 - 00:00 End Date: 9/30/2015 - 23:00	**ARCADIS**	
		MODELER: **JEC**	
	CALM WINDS: **20.50%**	TOTAL COUNT: **11463 observations**	
	AVG. WIND SPEED: **5.27 Knots**	DATE: **4/22/2016**	PROJECT NO.:

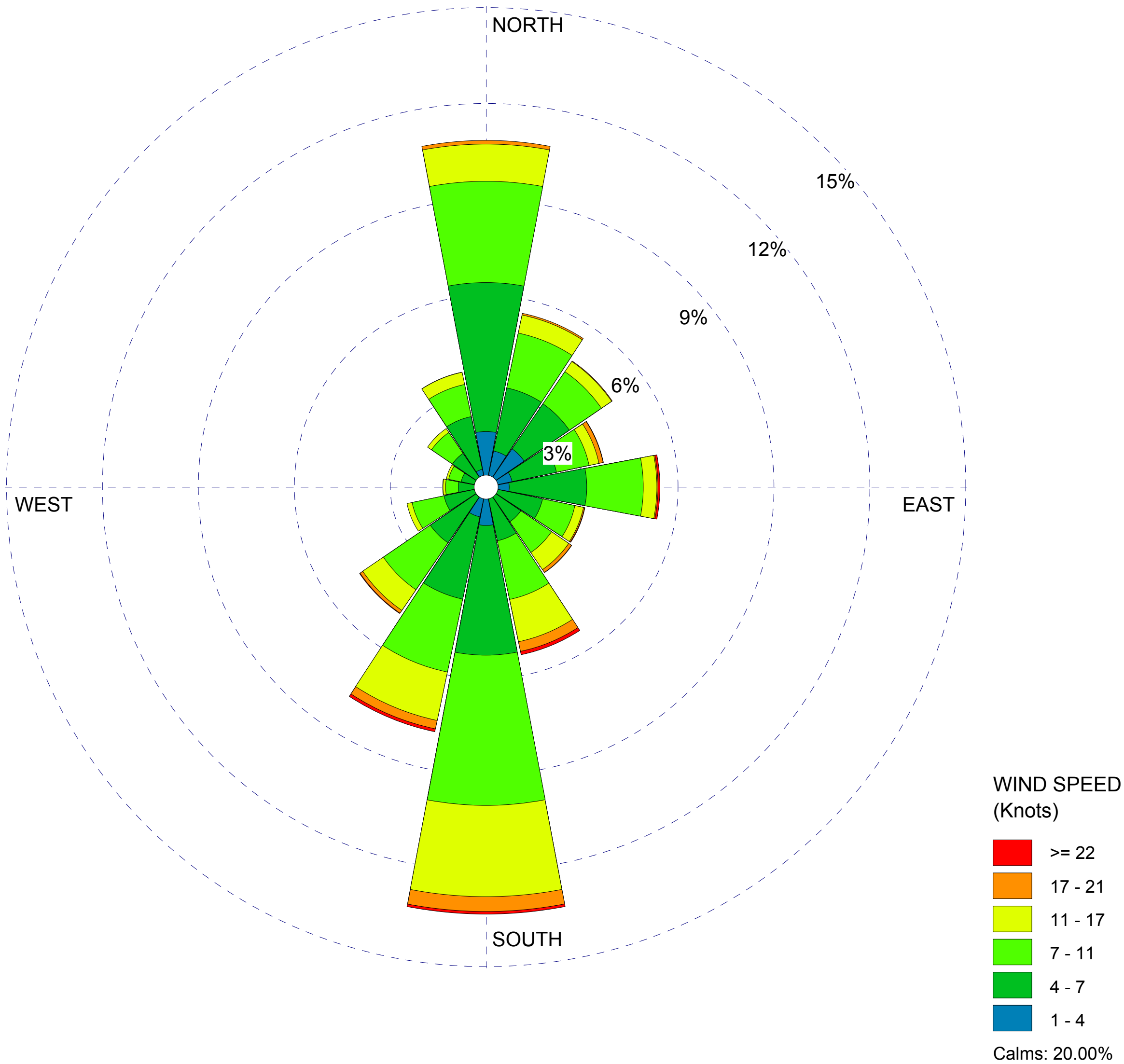
WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:

Station #13978

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

Start Date: 3/2/2015 - 00:00
End Date: 3/31/2016 - 22:00

COMPANY NAME:

ARCADIS

MODELER:

JEC

CALM WINDS:

20.00%

TOTAL COUNT:

12082 observations

AVG. WIND SPEED:

5.66 Knots

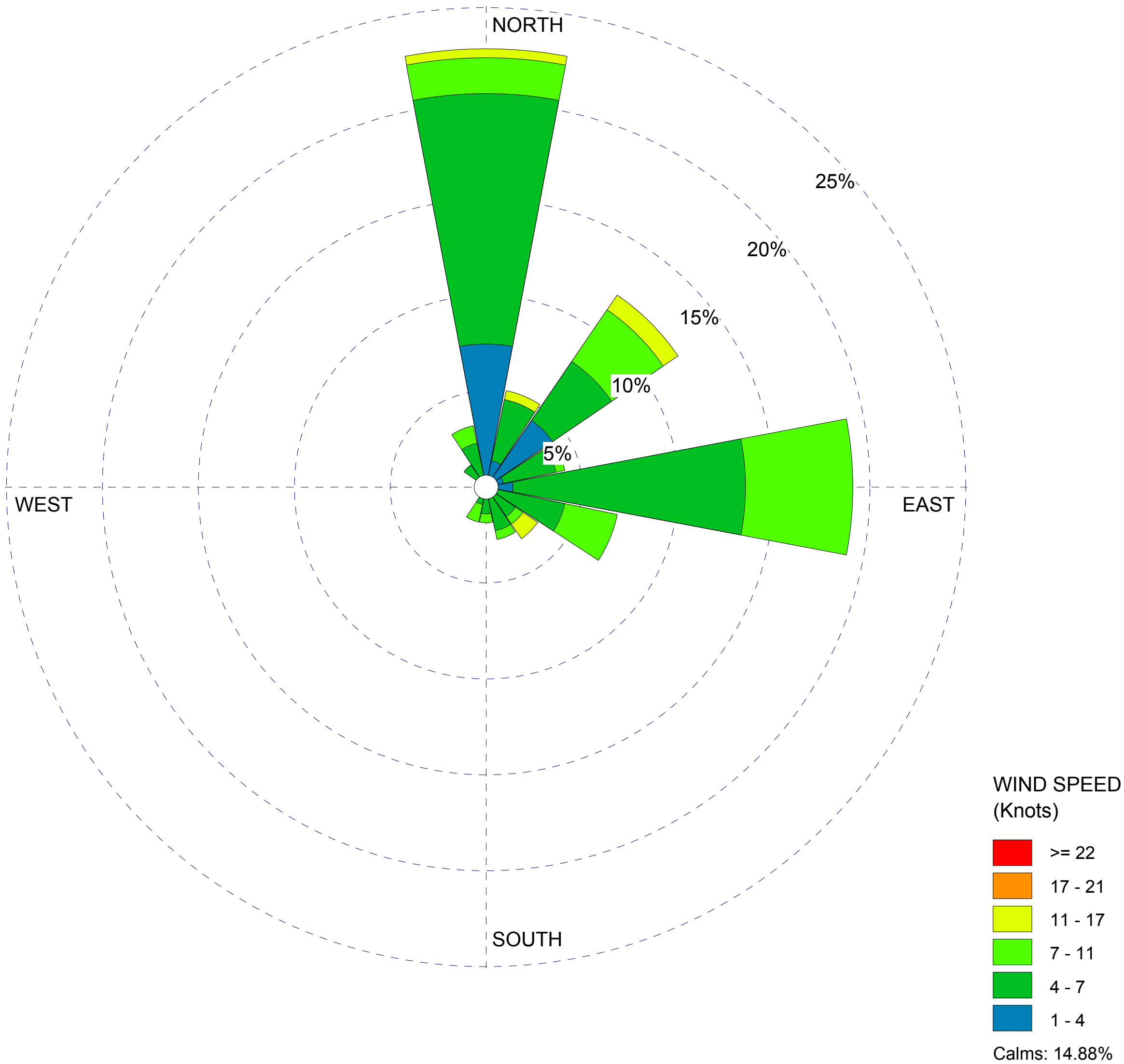
DATE:

4/22/2016

PROJECT NO.:

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:	DISPLAY:
Station #13978	**Wind Speed** **Direction (blowing from)**



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 9/14/2015 - 00:00 **End Date: 9/22/2015 - 23:00**	**ARCADIS**	
		MODELER: **JEC**	
	CALM WINDS: **14.88%**	TOTAL COUNT: **215 observations**	
	AVG. WIND SPEED: **4.68 Knots**	DATE: **4/21/2016**	PROJECT NO.:

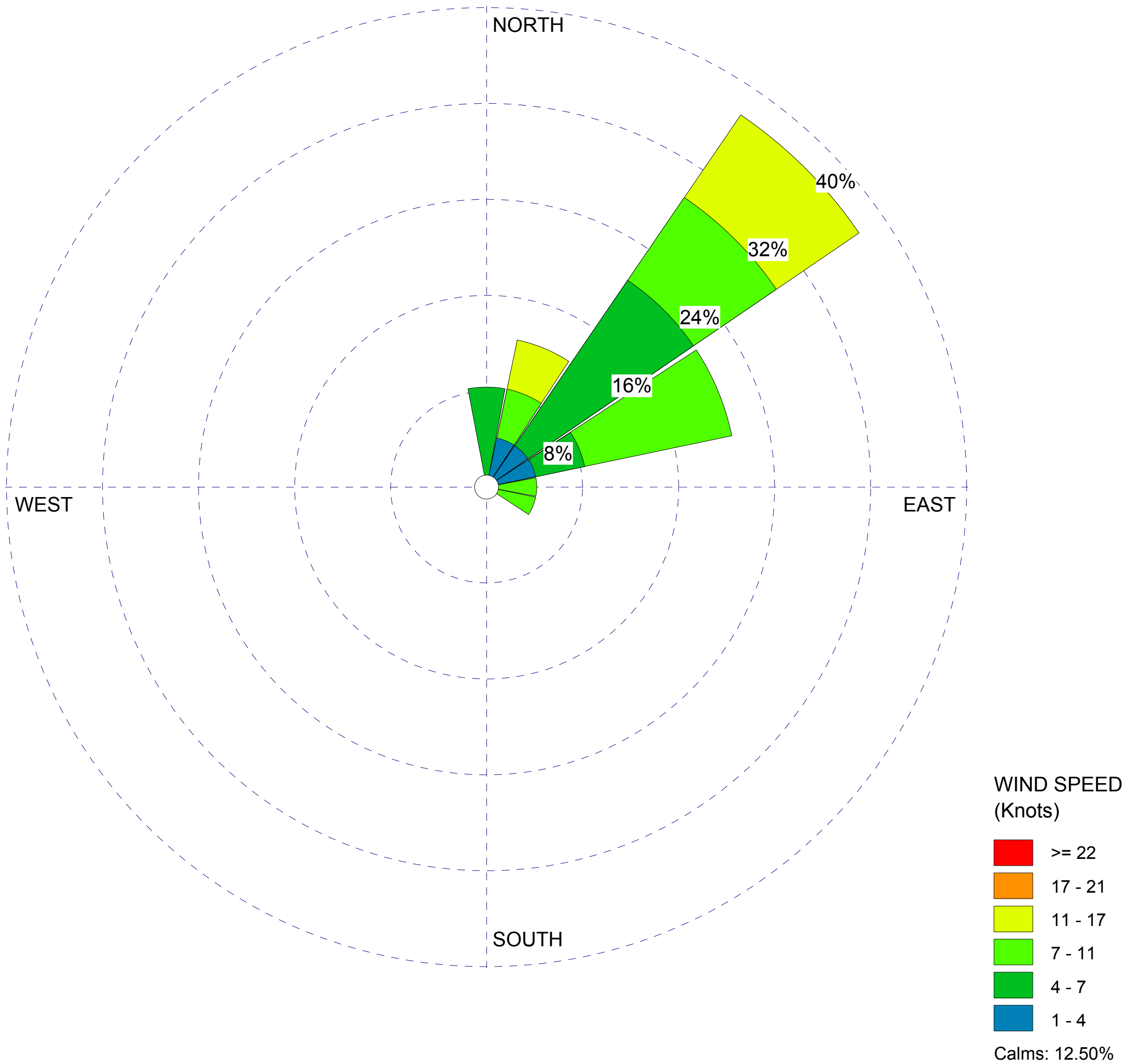
WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:

Station #13978

DISPLAY:

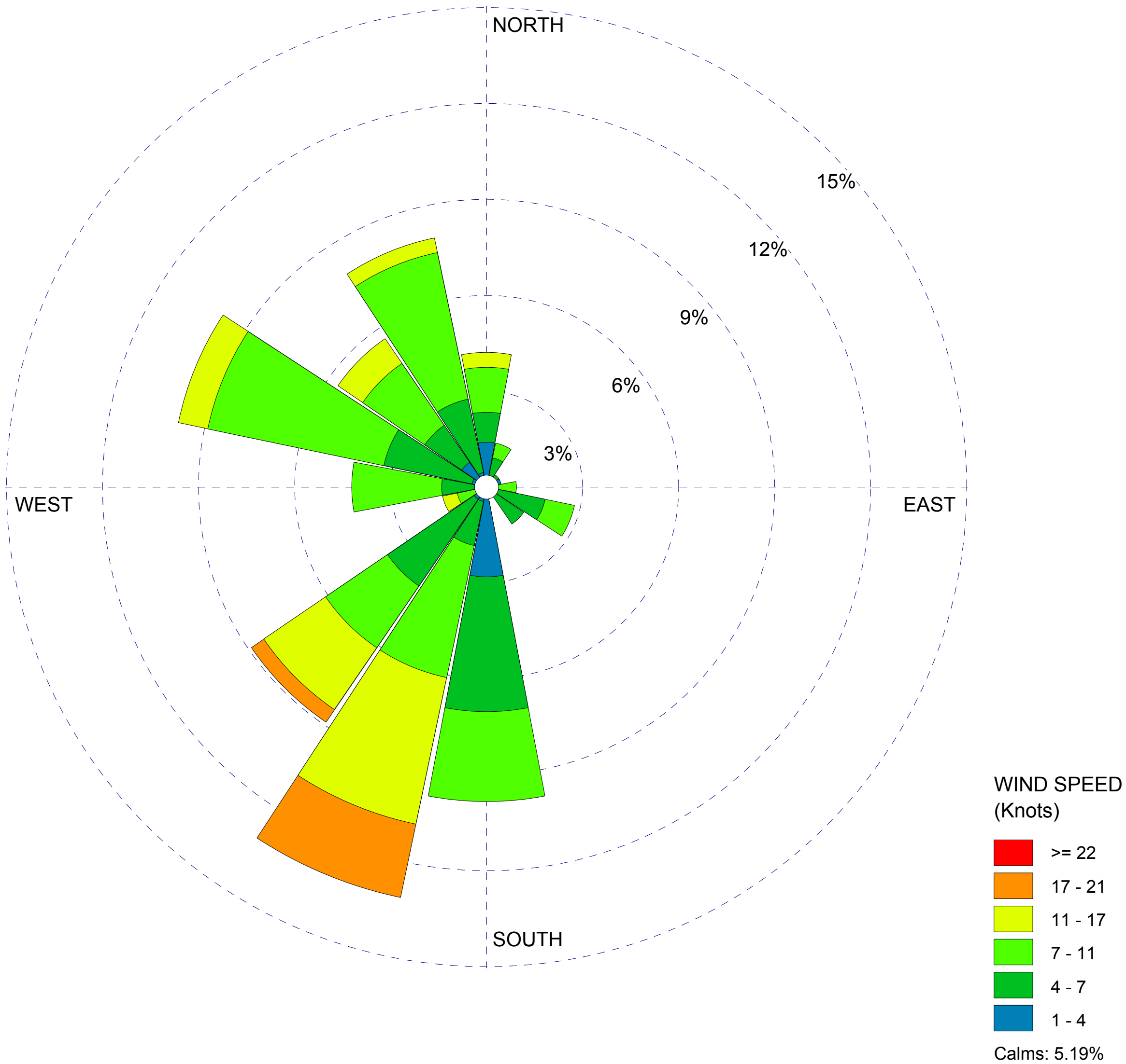
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 9/22/2015 - 12:00** **End Date: 9/23/2015 - 23:00**	COMPANY NAME: **ARCADIS**	
		MODELER: **JEC**	
	CALM WINDS: **12.50%**	TOTAL COUNT: **24 observations**	
	AVG. WIND SPEED: **6.03 Knots**	DATE: **4/21/2016**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:	DISPLAY:
Station #13978	**Wind Speed** **Direction (blowing from)**



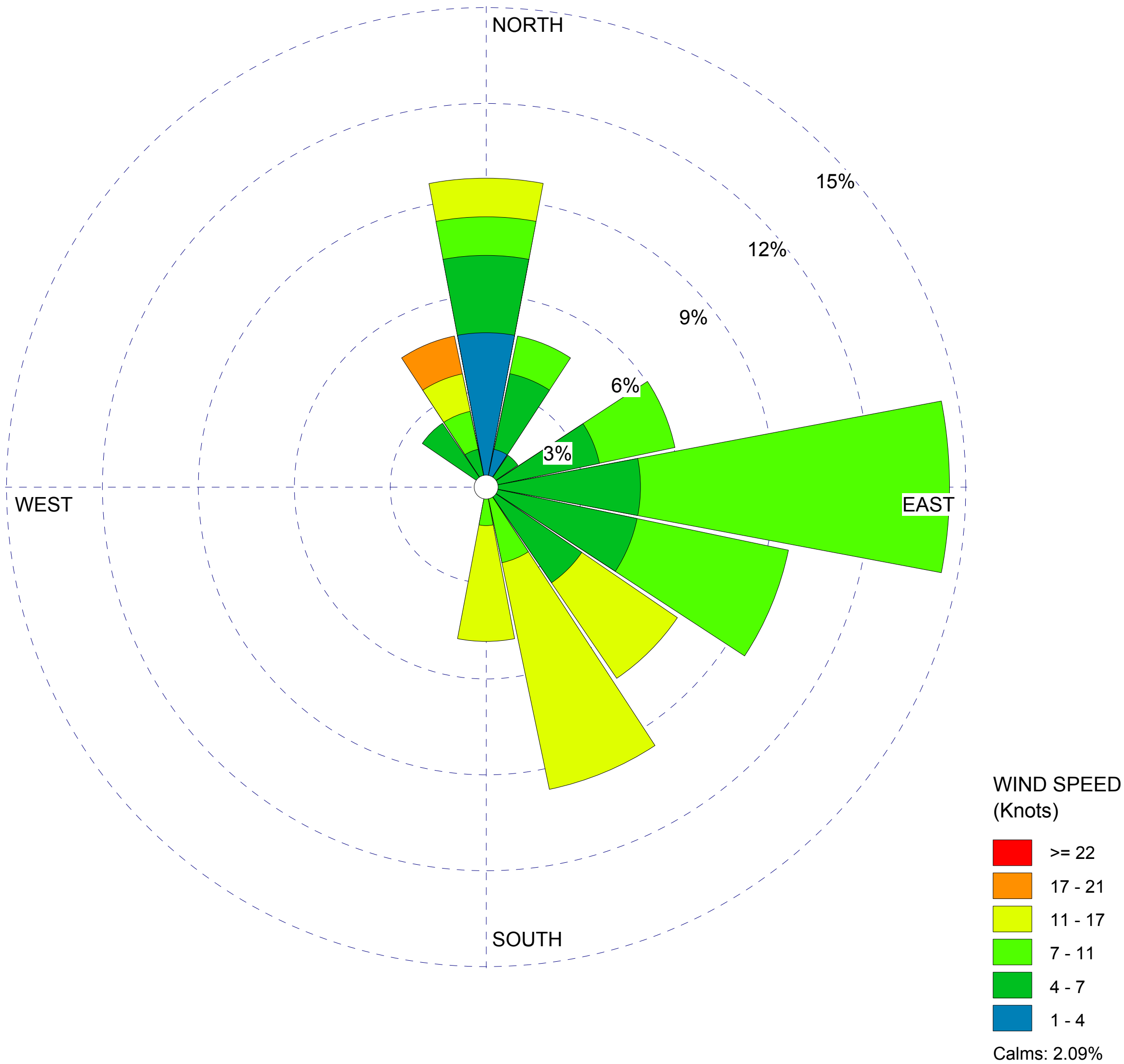
COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 2/24/2016 - 00:00 **End Date: 3/2/2016 - 23:00**	**ARCADIS**	
		MODELER: **JEC**	
	CALM WINDS: **5.19%**	TOTAL COUNT: **214 observations**	
	AVG. WIND SPEED: **5.57 Knots**	DATE: **4/22/2016**	PROJECT NO.:

WIND ROSE PLOT:

Station #13978

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

Start Date: 3/2/2016 - 00:00
End Date: 3/3/2016 - 23:00

COMPANY NAME:

ARCADIS

MODELER:

JEC

CALM WINDS:

2.09%

TOTAL COUNT:

83 observations

AVG. WIND SPEED:

5.85 Knots

DATE:

4/22/2016

PROJECT NO.:

WRPLOT View - Lakes Environmental Software

APPENDIX E

Laboratory Analytical Data Reports – Soil Gas, Indoor Air, Sub-Slab Vapor, Groundwater, and Soil (provided on CD)

APPENDIX F

Indoor Air Building and Sampling Surveys

Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: Marie Heap / Randy Woodruff

Date/Time Prepared: 9-21-15 / 1215

Preparer's Affiliation: ARCADIS

House #1

Phone No.: 317 231 6500

Purpose of Investigation: VI Assessment

1. OCCUPANT:

Interviewed: Y / N

Last Name: [redacted] First Name: [redacted]

Address: [redacted]

County: Grenada

Home Phone: [redacted] Office Phone: 662 229 0448

Number of Occupants/Persons at this Location: 2

Age of Occupants: adult [redacted]

Best time to call-anytime

2. OWNER OR LANDLORD: (Check if Same as Occupant X)

Interviewed: Y / N

Last Name: ______ First Name: ______

window A/C unit

Address: ______

County: ______

na

Home Phone: ______ Office Phone: ______

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential School Commercial/Multi-use

Industrial Church Other: ________________

If the Property is Residential, Type? (circle appropriate response)

Ranch 2-Family 3-Family

Raised Ranch Split Level Colonial

Cape Cod Contemporary Mobile Home

Duplex Apartment House Townhouses/Condos

Modular Log Home Other:______________

If Multiple Units, How Many? na

If the Property is Commercial, Type?

Business Type(s) na

Does it include residences (i.e., multi-use)? Y / N If yes, how many? na

Other Characteristics:

Number of Floors 1 Building Age 1980s (original owner)

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

na

Airflow Near Source

na

Outdoor Air Infiltration

na

Infiltration Into Air Ducts

na

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS:** (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick	
b.	**Basement type:**	full	crawlspace	slab other ________	
c.	**Basement floor:**	concrete	dirt	stone other na	
d.	**Basement floor:**	uncovered	covered	covered with na	
e.	**Concrete floor:**	unsealed	sealed	sealed with unknown	
f.	**Foundation walls:**	poured	block stone	other na	
g.	**Foundation walls:**	unsealed	sealed	sealed with na	
h.	**The basement is:**	wet	damp	dry	moldy na
i.	**The basement is:**	finished	unfinished	partially finished na	
j.	**Sump present?**	Y / N			
k.	**Water in sump?**	Y / N / NA			

Basement/lowest level depth below grade: ________(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

None observed

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N na

6. HEATING, VENTILATING, AND AIR CONDITIONING: (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	Central
Space heaters	Stream radiation	Radiant floor	gas heating.
Electric baseboard	Wood stove	Outdoor wood boiler	central air
Other ________			

The primary type of fuel used is:

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal	natural gas.	

Domestic hot water tank fueled by: gas

Boiler/furnace located in: Basement Outdoors Main Floor Other________

Air conditioning: Central Air both Window Units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

7. OCCUPANCY:

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never na

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement na

1st Floor Bed / Bath / kitchen / Living

2nd Floor na

3rd Floor na

4th Floor na

8. **FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:**

a. **Is there an attached garage?** Y / N carport

b. **Does the garage have a separate heating unit?** Y / N / NA

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**
Y / N / NA Please specify: kept in shed

d. **Has the building ever had a fire?** Y / N When? ____

e. **Is a kerosene or unvented gas space heater present?** Y / N Where? ____

f. **Is there a workshop or hobby/craft area?** Y / N Where & Type? shed.

g. **Is there smoking in the building?** Y / N How frequently? outside

h. **Have cleaning products been used recently?** Y / N When & Type? ____

i. **Have cosmetic products been used recently?** Y / N When & Type? ____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? no.

k. **Is there new carpet, drapes or other textiles?** **Y / N** **Where & When?** no

l. **Have air fresheners been used recently?** Y / N When & Type? no

m. **Is there a kitchen exhaust fan?** Y / N If yes, where stove

n. **Is there a bathroom exhaust fan?** Y / N If yes, where vented? ____

o. **Is there a clothes dryer?** Y / N **If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / N When & Type? few weeks ago termite treatment.

q. Are there odors in the building? Y / N

If yes, please describe: ______________________________

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

If yes, what types of solvents are used? ______________ retired

If yes, are their clothes washed at work? Y / N na

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No monthly

Yes, use dry-cleaning infrequently (monthly or less) Unknown not recently

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: na

Is the system active or passive? Active/Passive na

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ______________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): ______________

____

Heavy vehicle traffic nearby (or other mobile sources): ______________

9. WATER AND SEWAGE:

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _______

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _______

– Standing water occasionally noted

10. **RELOCATION INFORMATION:** (for oil spill residential emergency)

a. **Provide reasons why relocation is recommended:** ______________________

____

NA

b. **Residents choose to:** remain in home relocate to friends/family relocate to hotel/motel

c. **Responsibility for costs associated with reimbursement explained?** Y / N

d. **Relocation package provided and explained to residents?** Y / N

11. **FLOOR PLANS:**

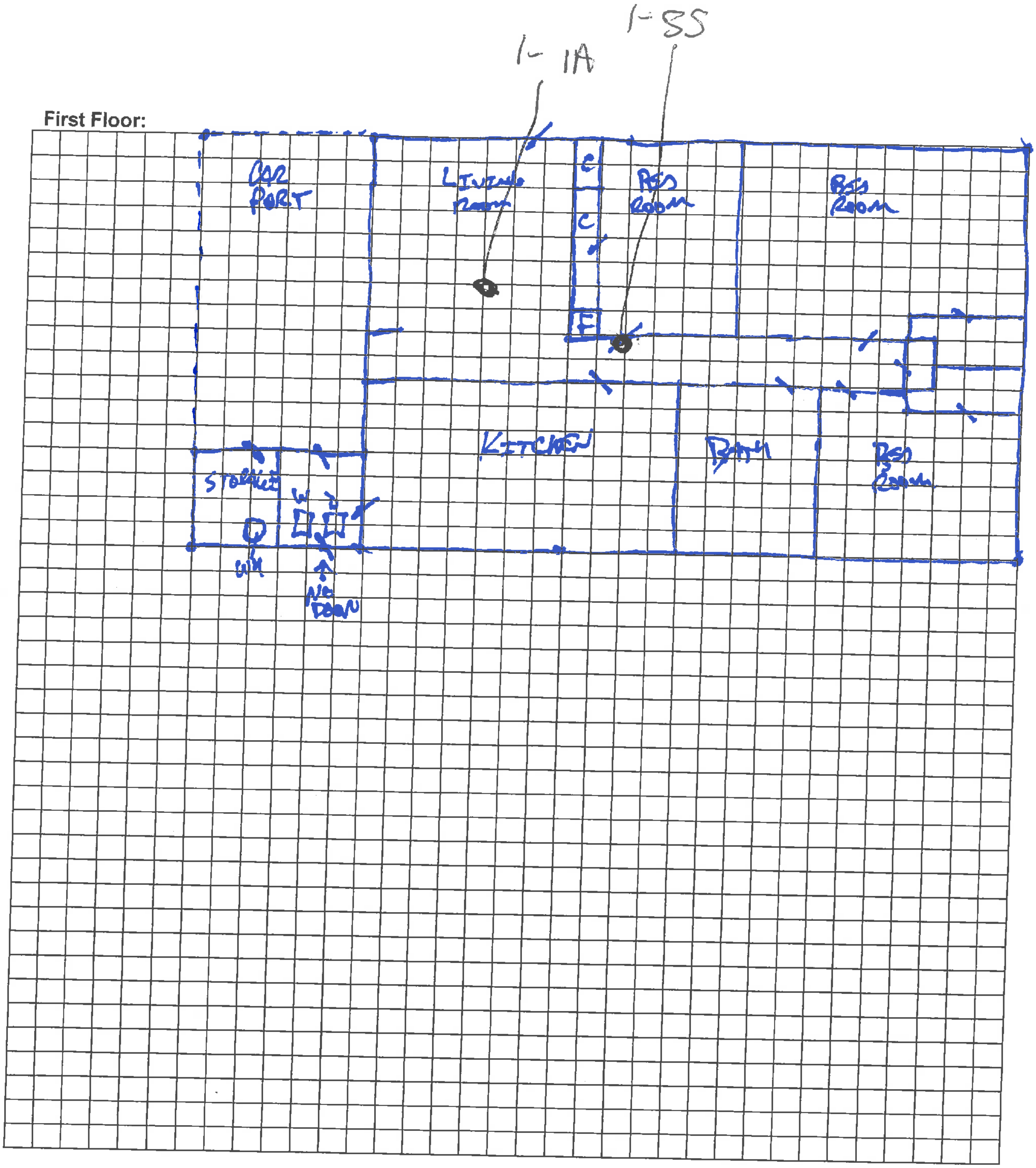
Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

NA

(b) (6) [redacted]

First Floor:



Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: Marie Harp / Randy Woodruff

Date/Time Prepared: 9-21-15 / 1335

House #2

Preparer's Affiliation: ARCADIS

Phone No.: 317 231 6500

Purpose of Investigation: VI Assessment.

1. OCCUPANT:

Interviewed: Y / N

Last Name: [redacted] First Name: [redacted] ~~interviewed~~ (~~Sister~~)

Address: [redacted]

County: Grenada

Home Phone: [redacted] Office Phone: ______

Number of Occupants/Persons at this Location: 2 Best time after 9am.

Age of Occupants: adults ([redacted])

2. OWNER OR LANDLORD: (Check if Same as Occupant X)

Interviewed: Y / N

Last Name: ______ First Name: ______

Address: ______ na

County: ______

Home Phone: ______ Office Phone: ______

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: ______

If the Property is Residential, Type? (circle appropriate response)

Ranch		2-Family 3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: ______

If Multiple Units, How Many? na

If the Property is Commercial, Type?

Business Type(s) na

Does it include residences (i.e., multi-use)? Y / N If yes, how many? na

Other Characteristics:

Number of Floors 1 Building Age 1980

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

na

Airflow Near Source

na

Outdoor Air Infiltration

na

Infiltration Into Air Ducts

na

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS:** (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick	
b.	**Basement type:**	full	crawlspace	slab other ____	
c.	**Basement floor:**	concrete	dirt	stone other na	
d.	**Basement floor:**	uncovered	covered	covered with na	
e.	**Concrete floor:**	unsealed	sealed	sealed with unknown	
f.	**Foundation walls:**	poured	block stone	other na	
g.	**Foundation walls:**	unsealed	sealed	sealed with na	
h.	**The basement is:**	wet	damp	dry	moldy na
i.	**The basement is:**	finished	unfinished	partially finished	na

j. **Sump present?** Y / N

k. **Water in sump?** Y / N / NA

Basement/lowest level depth below grade: ________(feet) na

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

none observed

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N na

6. **HEATING, VENTILATING, AND AIR CONDITIONING:** (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	electric gas.
Space heaters	Stream radiation	Radiant floor	electric stove
Electric baseboard	Wood stove	Outdoor wood boiler	public water
Other ________	furnace (gas.) central		public sewer.

The primary type of fuel used is: central ac no window units

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal	natural gas	

Domestic hot water tank fueled by: nat. gas.

Boiler/furnace located in: Basement Outdoors Main Floor Other________

Air conditioning: Central Air Window Units Open Windows None

Are there air distribution ducts present? Y / N attic small.

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

7. **OCCUPANCY:**

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never na

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement na

1st Floor Bed/Bath/kitchen/Living

2nd Floor na

3rd Floor na

4th Floor na.

8. **FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:**

a. **Is there an attached garage?** Y / N Carport w/ attached shed

b. **Does the garage have a separate heating unit?** Y / N / NA

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**
Y / N / NA Please specify: Shed (detached.)

d. **Has the building ever had a fire?** Y / N When? ________

e. **Is a kerosene or unvented gas space heater present?** Y / N Where? ________

f. **Is there a workshop or hobby/craft area?** Y / N Where & Type? ________

g. **Is there smoking in the building?** Y / N How frequently? ________

h. **Have cleaning products been used recently?** Y / N When & Type? Floor cleaner ~1 week ago.

i. **Have cosmetic products been used recently?** Y / N When & Type? ________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ________

k. **Is there new carpet, drapes or other textiles?** Y / N **Where & When?** ________

l. **Have air fresheners been used recently?** Y / N When & Type? yesterday

m. **Is there a kitchen exhaust fan?** Y / N If yes, where ________

n. **Is there a bathroom exhaust fan?** Y / N If yes, where vented? 1 yes / 1 no

o. **Is there a clothes dryer?** Y / N **If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / N When & Type? ________

- no hairspray
- bug spray outside ~2weeks ago
- Start of summer - weed killer

q. **Are there odors in the building?** Y / N

If yes, please describe: ____________________

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

no AC unit job

If yes, what types of solvents are used? ____________________

If yes, are their clothes washed at work? Y / N na

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No over a month since dry cleaner clothes brought in

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning service 3 x year.

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: na

Is the system active or passive? Active/Passive na.

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ____________________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): ____________________

____

Heavy vehicle traffic nearby (or other mobile sources): ____________________

9. **WATER AND SEWAGE:**

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _______
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _______

10. **RELOCATION INFORMATION:** (for oil spill residential emergency)

a. **Provide reasons why relocation is recommended:** ______________________________

____

b. **Residents choose to:** remain in home relocate to friends/family relocate to hotel/motel

c. **Responsibility for costs associated with reimbursement explained?** Y / N

d. **Relocation package provided and explained to residents?** Y / N

n/a

11. **FLOOR PLANS:**

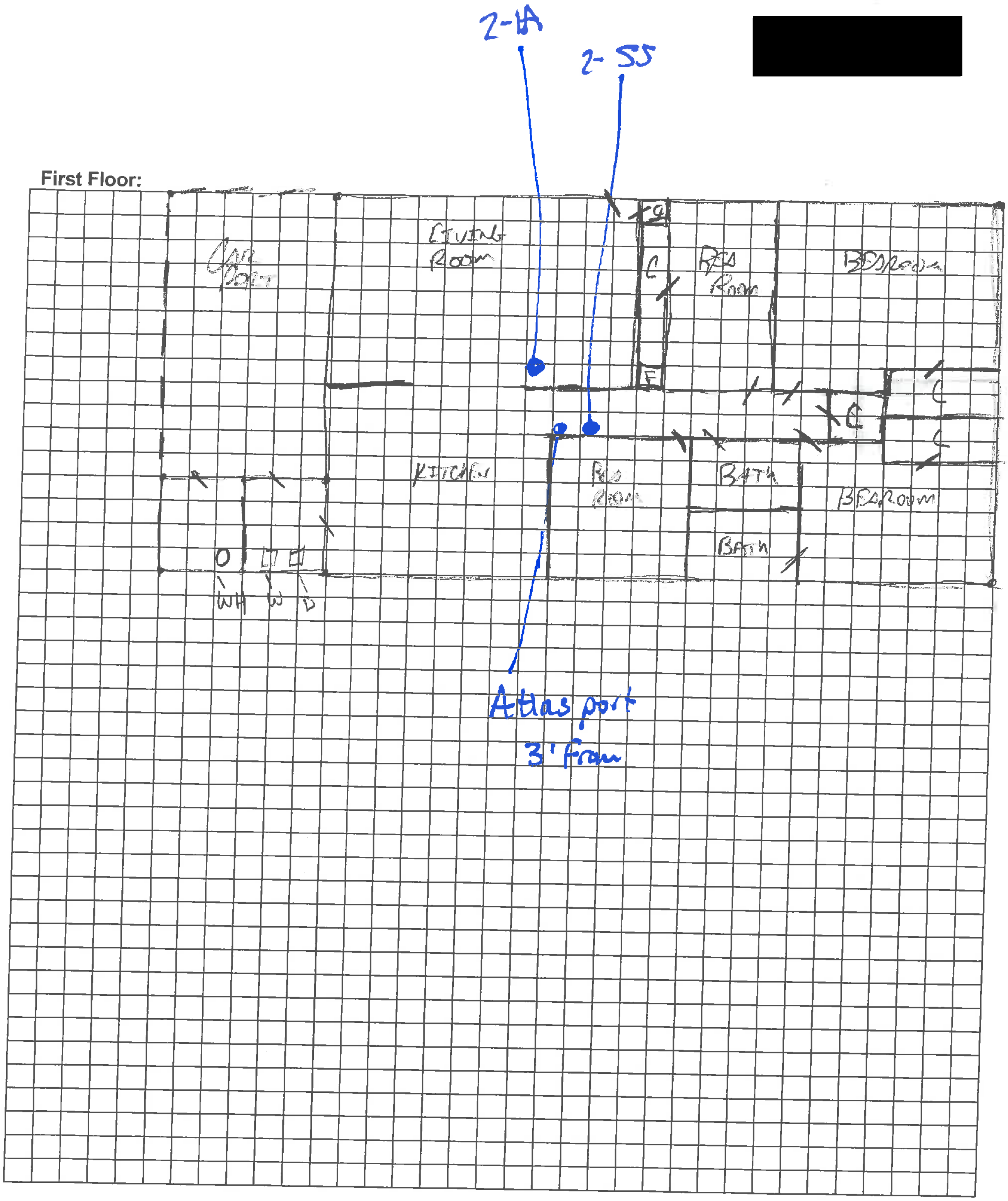
Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

NA

[redacted]

First Floor:



W&P mobile cyc

Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: Marie Heap / Randy Woodruff

Date/Time Prepared: 9-21-15 / 1525

House #3

Preparer's Affiliation: ARCADIS

Phone No.: 317-231-6500

Purpose of Investigation: VI Assessment

1. OCCUPANT:

Interviewed: Y / N

Last Name: (b) (6) [redacted] First Name: (b) (6) [redacted]

Address: (b) (6) [redacted]

County: Grenada

Home Phone: (b) (6) [redacted] Office Phone: ____________

Number of Occupants/Persons at this Location: 1 (2nd son home

Age of Occupants: adult ((b) (6) [redacted]

2. OWNER OR LANDLORD: (Check if Same as Occupant X)

Interviewed: Y / N

Last Name: ____________ First Name: ____________

Address: ____________ na

County: ____________

Home Phone: ____________ Office Phone: ____________

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: ________

If the Property is Residential, Type? (circle appropriate response)

Ranch		2-Family 3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: ________

If Multiple Units, How Many? na

If the Property is Commercial, Type?

Business Type(s) na

Does it include residences (i.e., multi-use)? Y / N If yes, how many? na

Other Characteristics:

Number of Floors 1 Building Age 1970's or 1980

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

na

Airflow Near Source

na

Outdoor Air Infiltration

na

Infiltration Into Air Ducts

na

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS:** (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick	
b.	**Basement type:**	full	crawlspace	slab	other ________
c.	**Basement floor:**	concrete	dirt	stone	other na
d.	**Basement floor:**	uncovered	covered	covered with na	
e.	**Concrete floor:**	unsealed	sealed	sealed with unknown vinyl flooring over concrete	
f.	**Foundation walls:**	poured	block stone	other na	
g.	**Foundation walls:**	unsealed	sealed	sealed with na	
h.	**The basement is:**	wet	damp	dry	moldy na
i.	**The basement is:**	finished	unfinished	partially finished na	

j. **Sump present?** Y / N

k. **Water in sump?** Y / N / NA

Basement/lowest level depth below grade: ________(feet) na

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

none observed

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N na

6. **HEATING, VENTILATING, AND AIR CONDITIONING:** (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	wall AC
Space heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	gas furnace
Other ______			

The primary type of fuel used is:

Natural ~~base~~ gas	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal		

Domestic hot water tank fueled by: natural gas

Boiler/furnace located in: Basement Outdoors Main Floor Other______

Air conditioning: Central Air Window Units Open Windows None wall unit

Are there air distribution ducts present? Y / N attic wall

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

______

______

______

7. **OCCUPANCY:**

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never na

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement na

1st Floor Bed / Bath / Kitchen / Living

2nd Floor na

3rd Floor na

4th Floor na

8. **FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:**

a. **Is there an attached garage?** Y / N carport.

b. **Does the garage have a separate heating unit?** Y / N / NA

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**
Y / N / NA Please specify: na

d. **Has the building ever had a fire?** Y / N When? ______

e. **Is a kerosene or unvented gas space heater present?** Y / N Where? ______

f. **Is there a workshop or hobby/craft area?** Y / N Where & Type? ______

g. **Is there smoking in the building?** Y / N How frequently? ______

h. **Have cleaning products been used recently?** Y / N When & Type? ______

i. **Have cosmetic products been used recently?** Y / N When & Type? ______

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ______

k. **Is there new carpet, drapes or other textiles?** Y / N **Where & When?** ______

l. **Have air fresheners been used recently?** Y / N When & Type? ______

m. **Is there a kitchen exhaust fan?** Y / N If yes, where ______

n. **Is there a bathroom exhaust fan?** Y / N If yes, where vented? ______

o. **Is there a clothes dryer?** Y / N **If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / N When & Type? ______

no air freshners
no mothballs

q. **Are there odors in the building?** Y / N

If yes, please describe: ______________________________

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

If yes, what types of solvents are used? na

If yes, are their clothes washed at work? Y / N na

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning service none.

no smoking

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: na

Is the system active or passive? Active/Passive na

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ______________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): ______________

Heavy vehicle traffic nearby (or other mobile sources): ______________

9. **WATER AND SEWAGE:**

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: ______
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: ______

10. **RELOCATION INFORMATION:** (for oil spill residential emergency)

a. **Provide reasons why relocation is recommended:** ______________________

____

b. **Residents choose to:** remain in home relocate to friends/family relocate to hotel/motel

c. **Responsibility for costs associated with reimbursement explained?** Y / N

d. **Relocation package provided and explained to residents?** Y / N

Na

11. **FLOOR PLANS:**

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

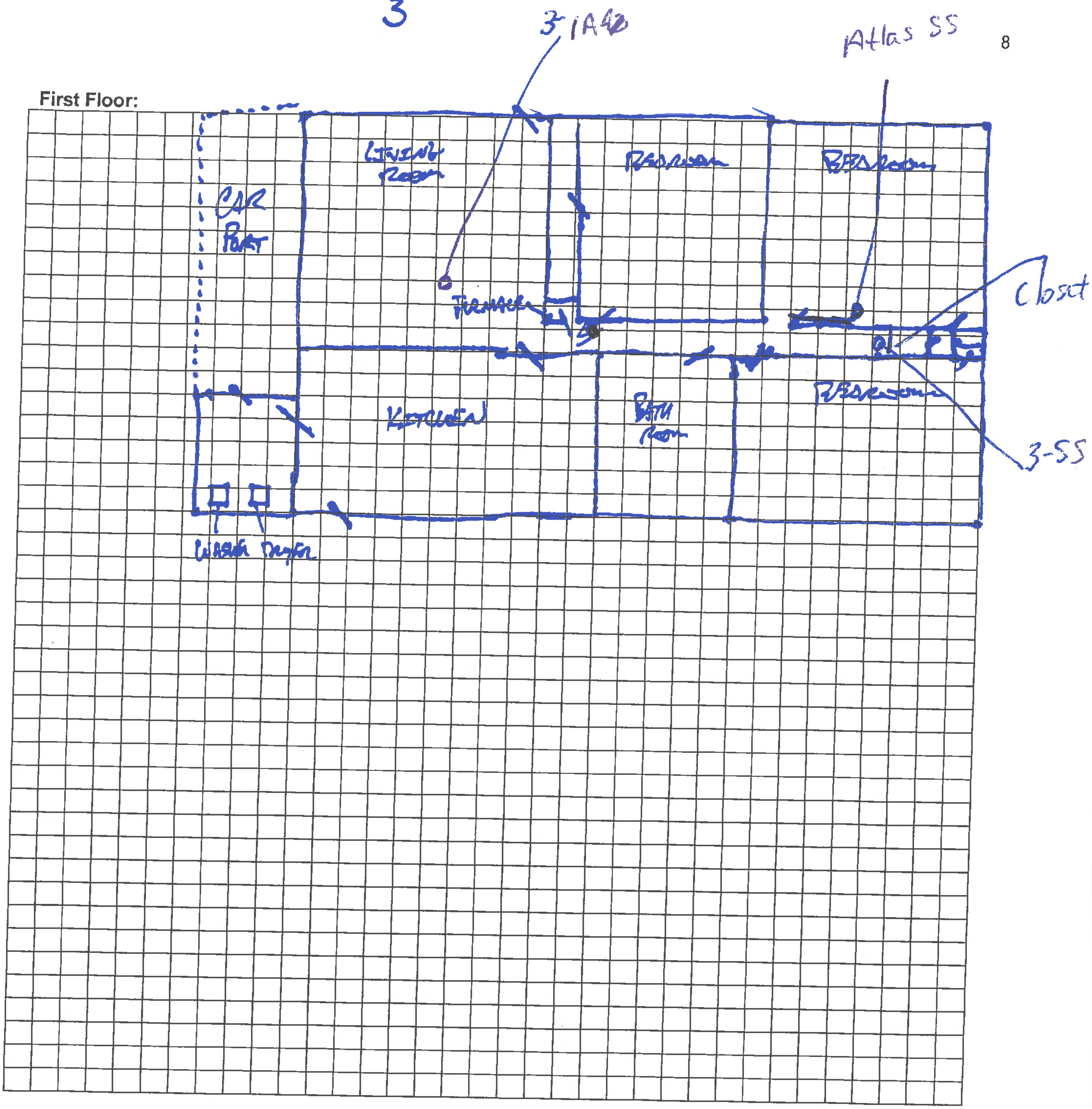
NA

[redacted]

3

4 totes of products

First Floor:



Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: Marie Heap/Randy Wardruff

Date/Time Prepared: 9-21-15/ 1640

Preparer's Affiliation: ARCADIS

House # 4

Phone No.: 317-231-6500

Purpose of Investigation: VI Assessment

1. OCCUPANT:

Interviewed: Y / N

Last Name: [redacted] First Name: [redacted] renter

Address: [redacted]

County: Grenada

Home Phone: [redacted] cell Office Phone: ____ Best time to call after 3pm

Number of Occupants/Persons at this Location: 2

Age of Occupants: [redacted] son 2 lived here ~3 years & moving

2. OWNER OR LANDLORD: (Check if Same as Occupant ___)

Interviewed: Y / N

Last Name: [redacted] First Name: [redacted]

Address: ____

County: ____

Home Phone: [redacted] Office Phone: ____

3. **BUILDING CHARACTERISTICS:**

Type of Building: (circle appropriate response)

Residential School Commercial/Multi-use

Industrial Church Other: ____________

If the Property is Residential, Type? (circle appropriate response)

Ranch 2-Family 3-Family

Raised Ranch Split Level Colonial

Cape Cod Contemporary Mobile Home

Duplex Apartment House Townhouses/Condos

Modular Log Home Other: ____________

If Multiple Units, How Many? na

If the Property is Commercial, Type?

Business Type(s) na

Does it include residences (i.e., multi-use)? Y / N If yes, how many? na

Other Characteristics:

Number of Floors 1 Building Age 1974

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. **AIRFLOW:**

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

na

Airflow Near Source

na

Outdoor Air Infiltration

na

Infiltration Into Air Ducts

na

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS:** (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick	
b.	**Basement type:**	full	crawlspace	slab other ________	
c.	**Basement floor:**	concrete	dirt	stone other na	
d.	**Basement floor:**	uncovered	covered	covered with na	
e.	**Concrete floor:**	unsealed	sealed	sealed with unknown	
f.	**Foundation walls:**	poured	block stone	other na	
g.	**Foundation walls:**	unsealed	sealed	sealed with na	
h.	**The basement is:**	wet	damp	dry	moldy na
i.	**The basement is:**	finished	unfinished	partially finished	na
j.	**Sump present?**	Y / N			
k.	**Water in sump?**	Y / N / NA			

Basement/lowest level depth below grade: ________(feet) na

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

none observed

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N na

6. **HEATING, VENTILATING, AND AIR CONDITIONING:** (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	central heat
Space heaters	Stream radiation	Radiant floor	window ac unit
Electric baseboard	Wood stove	Outdoor wood boiler	
Other ______			

The primary type of fuel used is:

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal	natural gas	

Domestic hot water tank fueled by: gas

Boiler/furnace located in: Basement Outdoors Main Floor Other Hall

Air conditioning: Central Air Window Units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

______

______

______

7. **OCCUPANCY:**

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never na

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement na

1st Floor Bed/Bath/ Kitchen /living

2nd Floor na

3rd Floor na

4th Floor na

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:

a. **Is there an attached garage?** Y / N carport

b. **Does the garage have a separate heating unit?** Y / N / NA

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**

Y / N / NA Please specify: ______

d. **Has the building ever had a fire?** Y / N When? ______

e. **Is a kerosene or unvented gas space heater present?** Y / N Where? ______

f. **Is there a workshop or hobby/craft area?** Y / N Where & Type? ______

g. **Is there smoking in the building?** Y / N How frequently? ______

h. **Have cleaning products been used recently?** Y / N When & Type? ______

i. **Have cosmetic products been used recently?** Y / N When & Type? ______

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ______

k. **Is there new carpet, drapes or other textiles?** Y / N **Where & When?** ______

l. **Have air fresheners been used recently?** Y / N When & Type? fabreeze lysol

m. **Is there a kitchen exhaust fan?** Y / N If yes, where ______

n. **Is there a bathroom exhaust fan?** Y / N If yes, where vented? ______

o. **Is there a clothes dryer?** Y / N **If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / N When & Type? ______

raid.
chlorox.
Fogger last year.
lysol used. Fabreeze used
carpet cleaner. pledge. no wax floor.

q. **Are there odors in the building?** Y / N

If yes, please describe: ______

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

If yes, what types of solvents are used? na

If yes, are their clothes washed at work? Y / N na

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) — No — Monthly

Yes, use dry-cleaning infrequently (monthly or less) — Unknown — dry cleaning brought home last week.

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N — works at a place that makes absorbant.

Date of Installation: na

Is the system active or passive? Active/Passive na

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ______

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): ______

______

Heavy vehicle traffic nearby (or other mobile sources): ______

9. **WATER AND SEWAGE:**

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: ______

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: ______

flooding present when it rains

10. **RELOCATION INFORMATION:** (for oil spill residential emergency)

a. **Provide reasons why relocation is recommended:** ______________________

____

b. **Residents choose to:** remain in home relocate to friends/family relocate to hotel/motel

c. **Responsibility for costs associated with reimbursement explained?** Y / N

d. **Relocation package provided and explained to residents?** Y / N

NA

11. **FLOOR PLANS:**

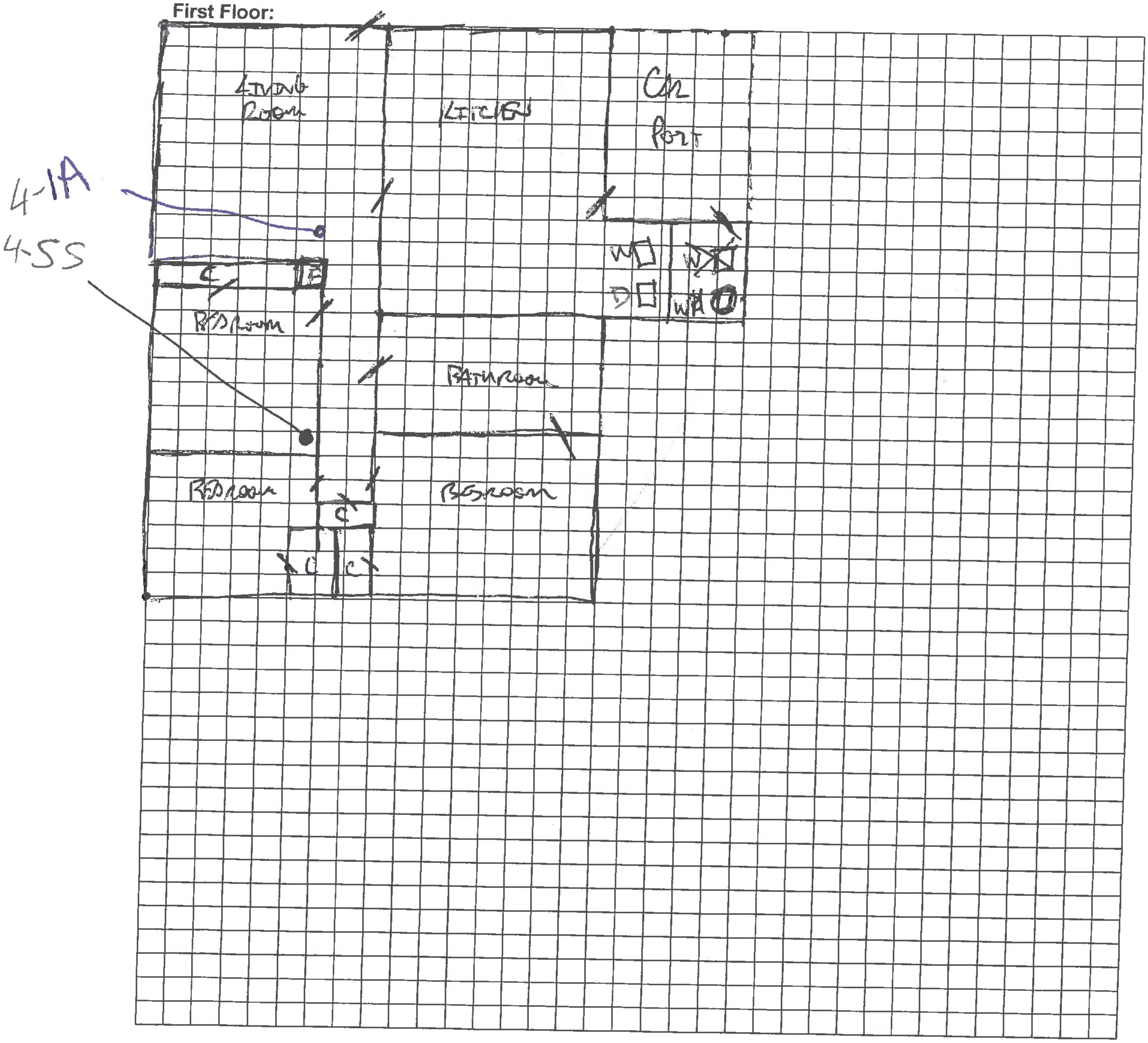
Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

NA

[redacted]

First Floor:



Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: Marie Heap / Randy Woodruff

Date/Time Prepared: 9-21-15 / 1300 House #5

Preparer's Affiliation: ARCADIS

Phone No.: 317-231-6500

Purpose of Investigation: VI Assessment

1. OCCUPANT:

Interviewed: Y / N

Last Name: (b) (6) [redacted] First Name: (b) (6) [redacted] (renter)

Address: (b) (6) [redacted]

County: Grenada

Home Phone: (b) (6) [redacted] Office Phone: ______ Childs father

Number of Occupants/Persons at this Location: 3 (b) (6) [redacted]

Age of Occupants: (b) (6) [redacted] lived 3-4 years

2. OWNER OR LANDLORD: (Check if Same as Occupant ___)

Interviewed: Y / N

Last Name: ______ First Name: ______

Address: ______

County: ______

Home Phone: ______ Office Phone: ______

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential School Commercial/Multi-use
Industrial Church Other: ________________

If the Property is Residential, Type? (circle appropriate response)

Ranch 2-Family 3-Family
Raised Ranch Split Level Colonial
Cape Cod Contemporary Mobile Home
Duplex Apartment House Townhouses/Condos
Modular Log Home Other:______________

If Multiple Units, How Many? __________

If the Property is Commercial, Type?

Business Type(s) ________________________________

Does it include residences (i.e., multi-use)? Y / N If yes, how many? ________

Other Characteristics:

Number of Floors 1 Building Age ~1980

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

na

Airflow Near Source

na

Outdoor Air Infiltration

na

Infiltration Into Air Ducts

na

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS:** (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick	
b.	**Basement type:**	full	crawlspace	slab other ________	
c.	**Basement floor:**	concrete	dirt	stone other na	
d.	**Basement floor:**	uncovered	covered	covered with na	
e.	**Concrete floor:**	unsealed	sealed	sealed with unknown (covered w/ vinyl floor epoxy)	
f.	**Foundation walls:**	poured	block stone	other na	
g.	**Foundation walls:**	unsealed	sealed	sealed with na	
h.	**The basement is:**	wet	damp	dry	moldy na
i.	**The basement is:**	finished	unfinished	partially finished na	
j.	**Sump present?**	Y / N			
k.	**Water in sump?**	Y / N / NA			

Basement/lowest level depth below grade: ________(feet) na

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

none observed

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N na

6. **HEATING, VENTILATING, AND AIR CONDITIONING:** (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard
Space heaters	Stream radiation	Radiant floor
Electric baseboard	Wood stove	Outdoor wood boiler
Other ________		

A/C. 3 window units

central heat

The primary type of fuel used is:

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal		

natural gas.

Domestic hot water tank fueled by: natural gas.

Boiler/furnace located in: Basement Outdoors Main Floor Other gas.

Air conditioning: Central Air Window Units Open Windows None 3

Are there air distribution ducts present? Y / N attic + walls

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

7. **OCCUPANCY:**

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never na

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement na

1st Floor 3 bed / 1 bath / kitchen / living room

2nd Floor na

3rd Floor na

4th Floor na

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:

a. **Is there an attached garage?** Y / N carport

b. **Does the garage have a separate heating unit?** Y / N / NA

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**

Y / N / NA Please specify: not in house or carport

d. **Has the building ever had a fire?** Y / N When? ______

e. **Is a kerosene or unvented gas space heater present?** Y / N Where? ______

f. **Is there a workshop or hobby/craft area?** Y / N Where & Type? ______

g. **Is there smoking in the building?** Y / N How frequently? ______

h. **Have cleaning products been used recently?** Y / N When & Type? > week (see photos)

i. **Have cosmetic products been used recently?** Y / N When & Type? non-aerosol, nail polish remover used recently

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ______

k. **Is there new carpet, drapes or other textiles?** Y / N **Where & When?** ______

l. **Have air fresheners been used recently?** Y / N When & Type? wax burners, air freshener

m. **Is there a kitchen exhaust fan?** Y / N If yes, where ______

n. **Is there a bathroom exhaust fan?** Y / N If yes, where vented? ______

o. **Is there a clothes dryer?** Y / N **If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / N When & Type? in past (> 3 months)

nail polish remover used

q. Are there odors in the building? Y / N

If yes, please describe: ______________________________

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N work at walmart

If yes, what types of solvents are used? na

If yes, are their clothes washed at work? Y / N na

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: na

Is the system active or passive? Active/Passive na

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ______________________________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): ______________________________

____

Heavy vehicle traffic nearby (or other mobile sources): ______________________________

9. WATER AND SEWAGE:

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _______

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _______

10. RELOCATION INFORMATION: (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: ______________________________

____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

na

11. FLOOR PLANS:

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

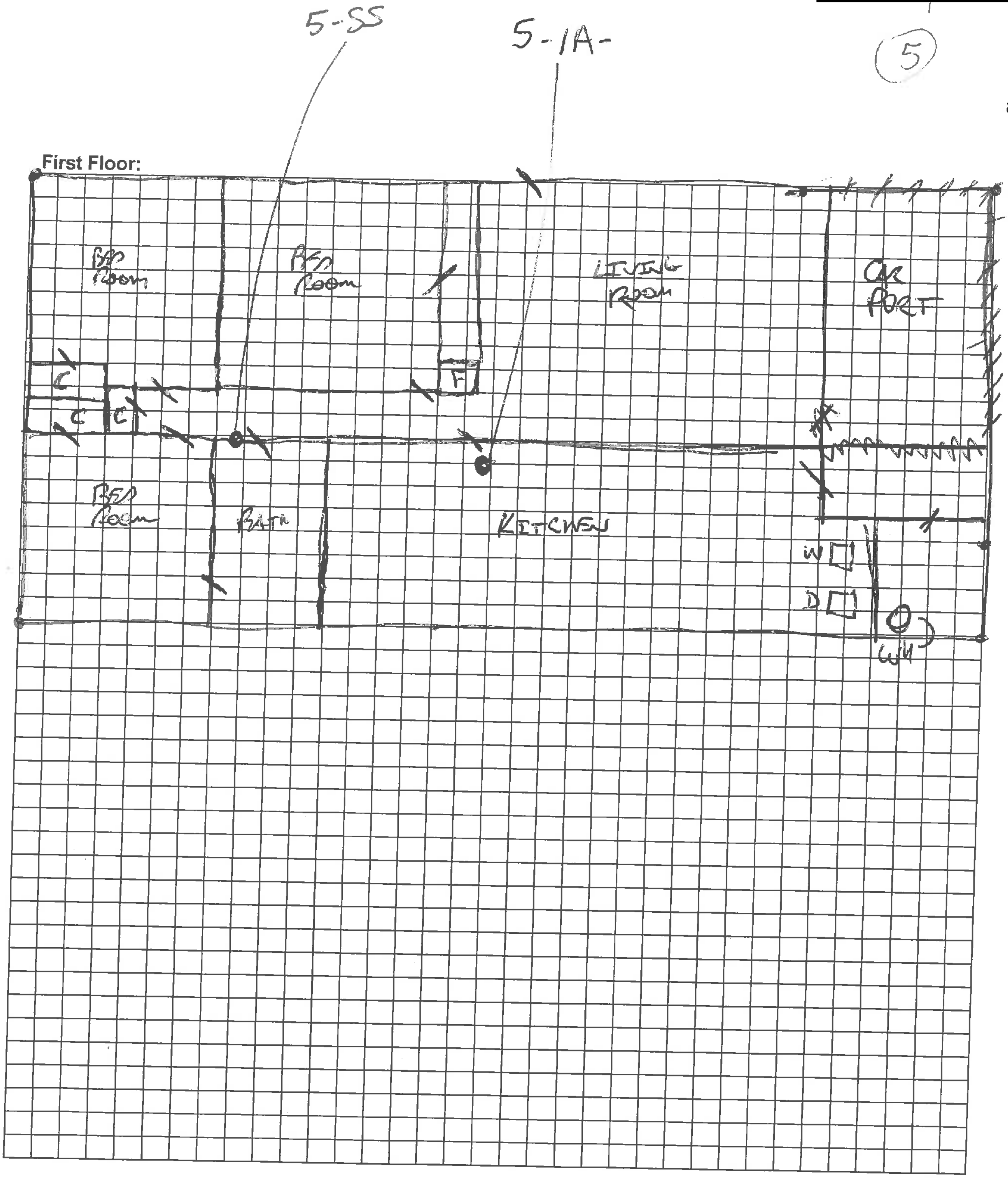
Basement:

NA

(b) (6) [redacted]

5

First Floor:



Building Survey and Product Inventory Form

Directions: This form must be completed for each residence or area involved in indoor air testing.

Preparer's Name: Marie Heup / Randy Woodruff

Date/Time Prepared: 9-21-15 / 1730

Preparer's Affiliation: ARCADIS

Phone No.: 317-231-6500

came back 9-22-15 @ 11 am to set up IA canister (6-IA)

House #6

Purpose of Investigation: VI Assessment

1. OCCUPANT:

Interviewed: Y / N

Last Name: [redacted] First Name: [redacted]

Address: [redacted]

County: Grenada

Home Phone: [redacted] cell. Office Phone: ______ M–F evenings

Number of Occupants/Persons at this Location: 1

Age of Occupants: [redacted] (6 years here)

2. OWNER OR LANDLORD: (Check if Same as Occupant X)

Interviewed: Y / N

Last Name: ______ First Name: ______

Address: ______

County: ______ na

Home Phone: ______ Office Phone: ______

3. **BUILDING CHARACTERISTICS:**

Type of Building: (circle appropriate response)

Residential School Commercial/Multi-use

Industrial Church Other: ________________

If the Property is Residential, Type? (circle appropriate response)

Ranch 2-Family 3-Family

Raised Ranch Split Level Colonial

Cape Cod Contemporary Mobile Home

Duplex Apartment House Townhouses/Condos

Modular Log Home Other:______________

If Multiple Units, How Many? na

If the Property is Commercial, Type?

Business Type(s) na

Does it include residences (i.e., multi-use)? Y / N If yes, how many? na

Other Characteristics:

Number of Floors 1 Building Age 1979

Is the Building Insulated? Y / N How Air-Tight? Tight / Average / Not Tight

4. **AIRFLOW:**

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

na

Airflow Near Source

na

Outdoor Air Infiltration

na

Infiltration Into Air Ducts

na

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS:** (circle all that apply)

a.	**Above grade construction:**	wood frame	concrete	stone brick	
b.	**Basement type:**	full	crawlspace	slab	other ______
c.	**Basement floor:**	concrete	dirt	stone	other na
d.	**Basement floor:**	uncovered	covered	covered with na	
e.	**Concrete floor:**	unsealed	sealed	sealed with Covered w/ glued on vinyl (unknown)	
f.	**Foundation walls:**	poured	block stone	other na	
g.	**Foundation walls:**	unsealed	sealed	sealed with na	
h.	**The basement is:**	wet	damp	dry	moldy na
i.	**The basement is:**	finished	unfinished	partially finished na	

j. **Sump present?** Y / N

k. **Water in sump?** Y / N / NA

Basement/lowest level depth below grade: ________(feet) na

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

none observed.

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N na

6. HEATING, VENTILATING, AND AIR CONDITIONING: (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard
Space heaters	Stream radiation	Radiant floor
Electric baseboard	Wood stove	Outdoor wood boiler
Other ________		

historically Septic system

The primary type of fuel used is:

Central AC & heat

Natural base	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal		

natural gas.

Domestic hot water tank fueled by: natural gas

Boiler/furnace located in: Basement Outdoors Main Floor Other__________

Air conditioning: Central Air Window Units Open Windows None

Are there air distribution ducts present? Y / N attic & walls

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

7. OCCUPANCY:

S.S" thick

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never na

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage): 1 floor only

Basement na

1st Floor 3 bed / 2 bath / kitchen / living

2nd Floor na

3rd Floor na

4th Floor na.

8. **FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY:**

a. **Is there an attached garage?** Y / N ~~carport~~. no carport (converted to room

b. **Does the garage have a separate heating unit?** Y / N / NA

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**
Y / N / NA Please specify: Shed in yard w/ lawnmower / weedeater

d. **Has the building ever had a fire?** Y / N When? ______

e. **Is a kerosene or unvented gas space heater present?** Y / N Where? ______

f. **Is there a workshop or hobby/craft area?** Y / N Where & Type? ______

g. **Is there smoking in the building?** Y / N How frequently? ______

h. **Have cleaning products been used recently?** Y / N When & Type? glade.

i. **Have cosmetic products been used recently?** Y / N When & Type? ______

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ______

k. **Is there new carpet, drapes or other textiles?** Y / N **Where & When?** ______

l. **Have air fresheners been used recently?** Y / N When & Type? glade. febreze

m. **Is there a kitchen exhaust fan?** Y / N If yes, where ______

n. **Is there a bathroom exhaust fan?** Y / N If yes, where vented? ______

o. **Is there a clothes dryer?** **Y / N** **If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / N When & Type? ______

Spray as needed

b/a

oven cleaner (several months ago)

pledge duster

q. **Are there odors in the building?** Y / N

If yes, please describe: ____________________

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / N

If yes, what types of solvents are used? work at walmart stocker

If yes, are their clothes washed at work? Y / N na

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N

Date of Installation: na

Is the system active or passive? Active/Passive na

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify ____________________

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): ____________________

Heavy vehicle traffic nearby (or other mobile sources): ____________________

9. **WATER AND SEWAGE:**

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _______
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _______

10. **RELOCATION INFORMATION:** (for oil spill residential emergency)

a. **Provide reasons why relocation is recommended:** ______________________

____

b. **Residents choose to:** remain in home relocate to friends/family relocate to hotel/motel

c. **Responsibility for costs associated with reimbursement explained?** Y / N

d. **Relocation package provided and explained to residents?** Y / N

na

11. **FLOOR PLANS:**

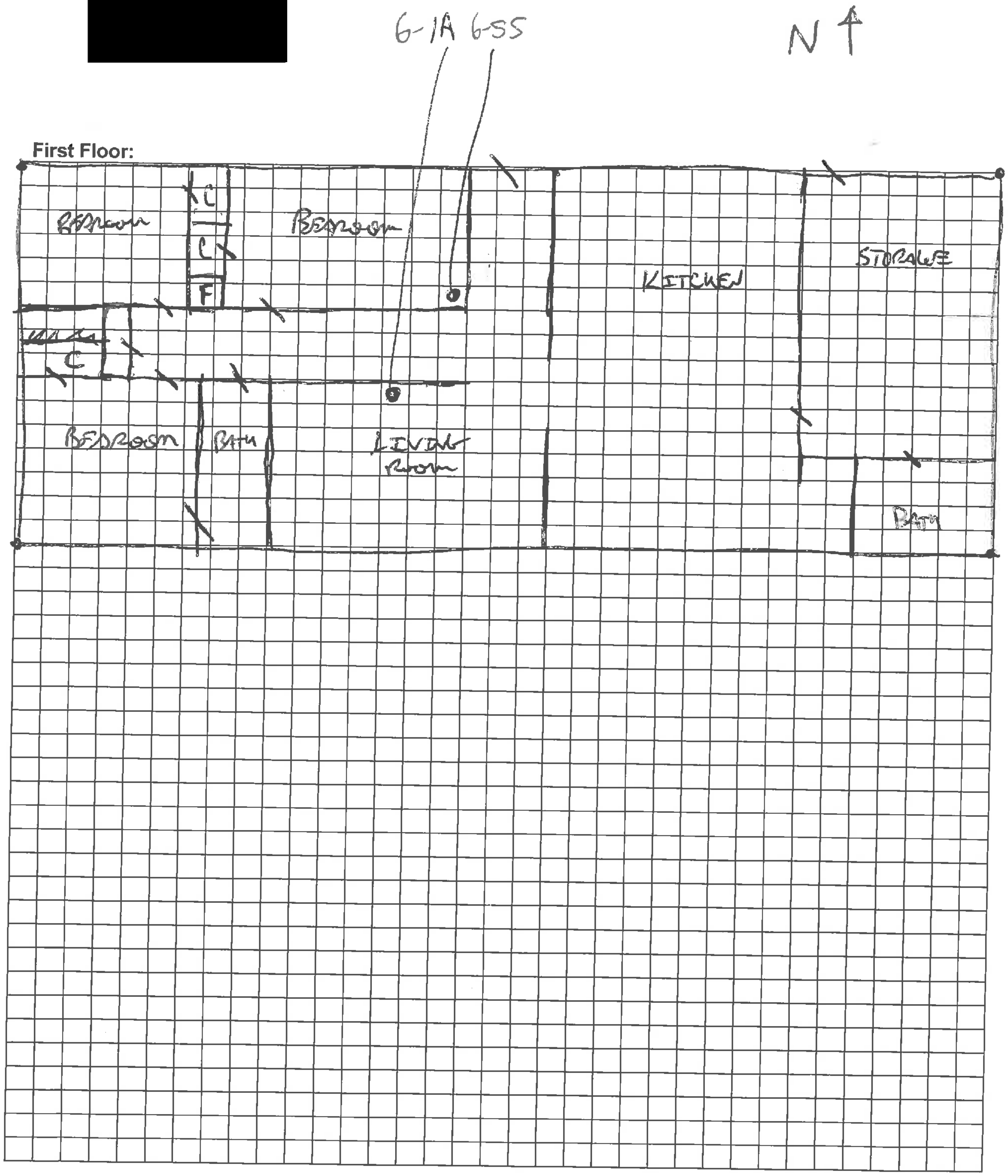
Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

NA

[redacted]

First Floor:



Samples. 6-1A (092215)
6-SS (092315)

APPENDIX G

VAP Sample/Core Logs

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-1 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/28/2015 **Drilling Completed:** 9/28/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | ▽ Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | ▼ Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
0	Hand Auger		Fill	FILL: Asphalt				
1	Hand Auger	2	Silt	SILT: Brown and tan, trace of asphalt, loose, dry			212	Sampled.
2	Hand Auger		Silty Clay	SILTY CLAY: Brown and tan, ferrous stain, nodules, stiff, dry				
3	Hand Auger	2	Silty Clay				150.1	
4	Hand Auger	1	Silty Clay					
5	Acetate Sleeve		Silty Clay				75.8	
6	Acetate Sleeve		Silty Clay	- brown, dark brown, tan, streaks of black natural organic stain, soft				
7	Acetate Sleeve	5	Silty Clay	- slight increase in silt			96.1	
9	Acetate Sleeve		Silty Clay	- damp - trace of very fine grain sand			116.0	
10	Acetate Sleeve		Silty Clay	- increase in sand, damp				
11	Acetate Sleeve		Sand	SAND: Brown and tan, trace of silt, damp			24.0	
12	Acetate Sleeve	3.0	Sand	- wet				▽
13	Acetate Sleeve		Sand				55.5	
14	Acetate Sleeve		Sand	- trace of fine grain silt				
15	Acetate Sleeve		Sand				98.7	
17	Acetate Sleeve		Sand	- very fine to fine grain, brown and tan, dark brown, wet			68.8	
18	Acetate Sleeve	3.5	Sand					
19	Acetate Sleeve		Sand	- streaks of dark orange brown with ferrous nodules - fine grain with some coarse grain			62.2	
21	Acetate Sleeve		Sand	- fine to coarse grain, tan and white, saturated			76.2	
23	Acetate Sleeve	3.5	Sand	- coarse grain, white, light gray			76.9	
25	Acetate Sleeve		Sand	- fine grain, tan, loose, some silt			50.9	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-1 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/28/2015 **Drilling Completed:** 9/28/2015

Land-Surface Elev.: ______ **Surveyed:** ______ **Estimated:** ______ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
27				- very fine to fine grain, light grayish white, saturated				50.8	
28		3.5		- loose, medium dense					
29								67.7	
30				- dark reddish brown, loose, saturated					
31								24.6	
32									
33		3.5		- fine to coarse grain				34.3	
34				- 4-inch silty clay layer					
35								22.9	
36				- saturated					
37				- fine grain with some coarse				113.9	
38		3.5		- light gray, trace of clay					
39								30.7	
40				- gray, fine grain, wet CLAYEY SAND: Gray, damp					
41								57.2	
42				SAND: Gray, fine grain, medium dense, wet					
43		5.0		CLAYEY SAND: Gray, damp				8.3	
44				SAND: Very fine to fine grain, light gray, medium dense, saturated					
45								17.1	
46									
47				CLAYEY SAND: Gray, trace of wood fragments, wet				17.8	
48		5.0		SILTY SAND: Gray, trace of clay, wet					
49								12.9	
50				- Total Depth 50 ft bls; Background PID 0.0 ppm.					

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-2 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/28/2015 **Drilling Completed:** 9/28/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
0				FILL: Asphalt				
1		2		SILT: Brownish gray, dry, loose			0	
2				CLAYEY SILT: Gray, trace of ferrous stain, dry, loose				
3		2		SILTY CLAY: Gray, some dull green, damp, very soft			0	Sampled.
4								
5		1					0	
6				- gray, damp, very stiff				
7							0	
8		5.0		- gray with dark brown streaks, damp, soft				
9							0	
10								
11				- streaks of black natural organic stain, dry			0	
12				- increase in clay, very stiff				
13		5.0					0	
14								
15				SAND: Gray, very fine grain, streaks of dark brown			0	▽
16								
17				- fine to coarse grain, brown to dark brown, wet			0	
18		4.0		- 2 inch silty clay layer				
19				- gray, saturated			0	
20				- no recovery				
21							0	
22				SAND				
23		3.0		- fine to coarse grain, brown to dark brown, dense, wet			0	
24				- 2 inch silty clay layer				
25							16.1	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-2 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/28/2015 **Drilling Completed:** 9/28/2015

Land-Surface Elev.: **Surveyed:** **Estimated:** **Datum:**

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** **Hammer Drop (inches):**

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | Water First Encountered

Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
27		4.5		- gray, light gray, very fine grain, saturated - streak of black natural organic stain, dense				21.2	
28									
29								14.3	
30									
31								20.8	
32									
33		4.25		- saturated				20.1	
34									
35								9.5	
36				- tan, very fine grain, saturated					
37								7.0	
38		4.25							
39				- very fine to fine grain, saturated				7.9	
40									
41				- gray, fine grain, saturated				6.3	
42				- 2 inch silty clay layer					
43		4.5						5.6	
44				- fine to coarse grain, saturated					
45								5.9	
46									
47								6.3	
48		5.0							
49				CLAY: Dark gray, sticky, dry, stiff				5.1	
50				- Total Depth 50 ft bls; Background PID 0.0 ppm.					

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-3 Project No.: Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi Drilling Started: 9/29/2015 Drilling Completed: 9/29/2015

Land-Surface Elev.: ______ Surveyed: _____ Estimated: _____ Datum: ______

Drilling Fluid: None Drilling Method Used: HA 1-5'/Direct Push

Drilling Contractor: Devonian Driller: Lonny Helper: Derrick/Tremaine

Prepared By: G. Cook Hammer Weight: ______ Hammer Drop (inches): ______

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
0	Hand Auger		Fill	FILL: Asphalt, fill (sand, silt)					
1		2	Silt	SILT: Gray, dry, loose				4.8	Sampled.
2			Clayey Silt	CLAYEY SILT: Gray, black natural organic stain, dry, very soft					
3		2						4.4	
4		1							
5	Acetate Sleeve							4.7	
6				- increase in clay, pocket of dull green, rootlets, dry					
7								3.7	
8		4.75	Silty Clay	SILTY CLAY: Gray, brown, ferrous nodules and stain					
9								3.3	
10	Acetate Sleeve			- damp, very soft - gray, dark brown, ferrous nodules and stain, dry, stiff					
11								2.7	
12									
13		5.0		- increase in silt, gray, trace of ferrous nodules, dry, firm				3.0	
14			Clayey Sand	CLAYEY SAND: Very fine grain, gray and dull green, dry, firm - 2 inch very fine grain sand layer					Water First Encountered
15	Acetate Sleeve		Sand	SAND: Very fine to fine grain, tan, wet				3.8	
16				- fine to coarse grain, tan and brown, loose, saturated					
17								3.5	
18		4.0		- some silt - 4 inch silty sand layer - fine grain, brown, saturated					
19								1.8	
20	Acetate Sleeve								
21				- tan, loose, saturated				2.6	
22									
23		4.75						3.1	
24				- brown, loose, saturated					
25								2.3	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-3 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/29/2015 **Drilling Completed:** 9/29/2015

Land-Surface Elev.: ______ **Surveyed:** ______ **Estimated:** ______ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Fill · Silty Clay · Silt · Sandy Silt · Silty Sand · Acetate Sleeve · Water First Encountered

Clay · Sandy Clay · Clayey Silt · Sand · Clayey Sand · Hand Auger · Water Level After 10 Minutes

SAMPLE DEPTH (ft)	RECOVERY (ft)	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
27–30	5.0	- very fine to fine grain, brown, saturated				2.2	
		- fine grain, gray, loose, saturated				3.9	
30–35	4.25	- very fine to fine grain, brown, saturated				4.2	
		- gray, fine grain, some silt, medium dense, wet					
		SILTY CLAY: Gray, damp, sticky, very soft				4.9	
35–40	5.0	SAND: Gray, loose, saturated				3.7	
		- fine grain, saturated				5.6	
						2.4	
40–45	2.75	- light gray				3.7	
		- gray, very fine grain, some silt and clay, wet				5.3	
45–50		- light gray, fine grain, saturated				6.6	
		- fine to coarse grain, saturated				7.2	
		SANDY CLAY: Gray, damp, very soft				5.3	
		- Total Depth 50 ft bls; Background PID 0.0 ppm.					

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-4 Project No.: Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi Drilling Started: 9/29/2015 Drilling Completed: 9/29/2015

Land-Surface Elev.: ____ Surveyed: ____ Estimated: ____ Datum: ____

Drilling Fluid: None Drilling Method Used: HA 1-5'/Direct Push

Drilling Contractor: Devonian Driller: Lonny Helper: Derrick/Tremaine

Prepared By: G. Cook Hammer Weight: ____ Hammer Drop (inches): ____

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
0				FILL: Asphalt, fill (sand, silt)					
1		2		SILT: Brown, dry, loose				4.6	
2				- gray, pockets of brown, dry, loose					
3		2						7.5	
4		1		- dry, loose					
5				SILTY CLAY: Brown with light gray streaks, dry, soft				8.7	
7				- brown, ferrous stain and nodules, dry, soft				78.2	Sampled.
8		5.0							
9								29.2	
11								0	
13				- dry, firm				0	
14				CLAYEY SAND: Gray, dense					Water First Encountered
14.5				SAND: Very fine grain, gray, dense, wet					
15								0	
17				- very fine to fine grain, brown, medium dense, wet				0	
18		3.0							
19				- very fine grain, tan, saturated				5	
21				- no recovery				NR	
22				SAND: Fine grain, tan, medium dense, saturated					
23								7.9	
24				- brown, medium dense, saturated					
25								3.6	

SAMPLE / CORE LOG

Boring/Well: VAP-4 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/29/2015 **Drilling Completed:** 9/29/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Legend: Fill; Silty Clay; Silt; Sandy Silt; Silty Sand; Acetate Sleeve; Water First Encountered; Clay; Sandy Clay; Clayey Silt; Sand; Clayey Sand; Hand Auger; Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
27–30		1.0		- no recovery			NR	
29–30			Sand	SAND: Fine to coarse grain, tan, saturated			4.2	
30–32				- no recovery			NR	
32–33		3.25	Silty Sand	SILTY SAND: Dark brown, medium dense, wet				
33–35			Silty Clay	SILTY CLAY: With very fine grain sand, gray, damp, firm			5.9	
35–36			Clayey Sand	CLAYEY SAND: Gray, medium dense, wet			3.4	
36–40		4.0	Sand	SAND: Very fine to fine grain, gray, medium dense, saturated			2.2	
				- fine grain, gray, saturated - trace of clay, saturated			1.2	
40–42				- no recovery			NR	
42–50		3.25	Sand	SAND: Fine grain, gray, medium dense, saturated			0.5	
							0.4	
		3.5		- coarse grain, gray, saturated			1.9	
				- intermixed, coarse sand, sandy layer - Total Depth 50 ft bls; Background PID 0.0 ppm.			1.5	

SAMPLE / CORE LOG

Boring/Well: VAP-5 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/29/2015 **Drilling Completed:** 9/29/2015

Land-Surface Elev.: **Surveyed:** **Estimated:** **Datum:**

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** **Hammer Drop (inches):**

Fill · Silty Clay · Silt · Sandy Silt · Silty Sand · Acetate Sleeve · ▽ Water First Encountered

Clay · Sandy Clay · Clayey Silt · Sand · Clayey Sand · Hand Auger · ▼ Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
0				FILL: Asphalt, fill (silt)					
1		2		SILT: Brown, white, gray streaks, dry, loose				4.6	
2									
3		2						5.1	
4									
5		1						4.8	Sampled.
6				SILTY CLAY: Dark brown, damp, soft					
7								4.5	
8		3.0		- ferrous stain and nodules, dry, stiff					
9								4.6	
10				- trace of sand					
11				- no recovery				NR	
12				SAND: Brown, very fine grain, some silt, wet					▽
13		3.0		- tan, very fine to fine grain, saturated				3.1	
14				- gray, very fine grain, saturated					
15				- tan				3.9	
16									
17								14.4	
18		3.0		- saturated					
19								8.2	
20									
21								8.8	
22				- fine grain, brown, saturated					
23		3.0						9.3	
24									
25								10.8	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-5 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/29/2015 **Drilling Completed:** 9/29/2015

Land-Surface Elev.: ______ **Surveyed:** ______ **Estimated:** ______ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | Water First Encountered

Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
27				- tan, saturated			8	
28				- brown, fine grain, saturated				
29				- gray, fine grain, saturated			4.2	
30								
31				- poor recovery			NR	
32				SAND: Light gray, very fine grain, saturated				
33		3.0					5.7	
34				- brown				
35				SANDY CLAY: Brown, damp, firm SAND: White with some silt, gray, very fine grain, dense, wet			3.3	
36								
37							3.9	
38		2.5						
39				- no recovery			NR	
40				SAND: Fine grain, gray, saturated				
41							1.6	
42								
43		3.0		SANDY CLAY: Gray, damp, soft			2.2	
44				- no recovery				
45				SAND: Gray, fine grain, saturated			1.7	
46								
47							0.2	
48		4.5		- fine to coarse grain, saturated				
49							0.0	
50				- Total Depth 50 ft bls; Background PID 0.0 ppm.				

SAMPLE / CORE LOG

Boring/Well: VAP-6 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/30/2015 **Drilling Completed:** 9/30/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
0				FILL: Asphalt, fill (silt)				
1		2		SILT: Brown, dry, loose			11.3	
3		2		CLAYEY SILT: Brown, dark brown, ferrous stain and nodules, dry, loose			15.9	Sampled.
5		1					14.3	
6				- dry, soft				
7		5.0		- increase in clay, firm			14.8	
10				SANDY CLAY: Brown, dry, saturated			10.0	
11				- no recovery			NR	
12		3.0		SILTY SAND: Tan, dense, wet				▽
14				- increase in very fine grain sand, dense			3.6	
16							5.4	
17		3.0		- silty sand, fine grain, brown, medium dense, wet			4.6	
19				- increase in fine grain sand			6.8	
21				- no recovery			NR	
22		2.5		SAND: Tan, fine grain, loose, wet				
24				- very fine to fine grain, some silt, dark brown, wet			6.1	
25							5.2	

SAMPLE / CORE LOG

Boring/Well: VAP-6 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/30/2015 **Drilling Completed:** 9/30/2015

Land-Surface Elev.: **Surveyed:** **Estimated:** **Datum:**

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** **Hammer Drop (inches):**

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
27–30	Acetate Sleeve	2.5	Sand					2.4	
								5.0	
30–35	Acetate Sleeve	2.5		- no recovery				NR	
			Sand	SAND: Fine grain, some silt, loose, wet				4.3	
			Silty Clay	SILTY CLAY: Tan, damp, soft					
			Sand	SAND: Light gray, very fine to fine grain, medium dense, saturated					
35–40	Acetate Sleeve	3.0	Sand					6.0	
								5.4	
								3.0	
40–45	Acetate Sleeve	3.0	Sand	- very fine grain, some silt, saturated, medium dense				1.5	
				- very fine to fine grain, saturated				0.9	
				- fine grain saturated					
45–50	Acetate Sleeve		Sand					3.6	
			Silty Clay	SILTY CLAY: Gray, damp, soft					
			Sand	SAND: 2 inch silty clay layer, gray, damp, very soft				3.4	
				- very fine grain, medium dense, wet				3.8	
50				- Total Depth 50 ft bls; Background PID 0.0 ppm.					

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-7 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/30/2015 **Drilling Completed:** 9/30/2015

Land-Surface Elev.: ______ **Surveyed:** ______ **Estimated:** ______ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
0	Hand Auger		Fill	FILL: Asphalt, fill (silt)					
1	Hand Auger	2	Silt	SILT: Brown and light gray, ferrous nodules, dry, loose				15.9	
2	Hand Auger		Clayey Silt	CLAYEY SILT: Brown and light gray, ferrous nodules and stain, dry loose					
3	Hand Auger	2						16.1	Sampled.
4	Hand Auger	1							
5	Acetate Sleeve							12.9	
6	Acetate Sleeve		Silty Clay	SILTY CLAY: Brown, ferrous nodules and stain, streaks of black natural organic stain, dry, firm					
7	Acetate Sleeve							4.8	
8	Acetate Sleeve	5.6	Clayey Silt	CLAYEY SILT: Brown, ferrous nodules, dry, loose					
9	Acetate Sleeve		Silty Sand	SILTY SAND: Tan, dry, loose				12.4	
10	Acetate Sleeve								
11	Acetate Sleeve			- no recovery				NR	
12	Acetate Sleeve		Silty Sand	SILTY SAND: Brown, very fine grain, wet					▽
13	Acetate Sleeve	2.5						13.5	
14	Acetate Sleeve			- brown, loose					
15	Acetate Sleeve							16.5	
17	Acetate Sleeve	2.5	Sand	SAND: Brown and dark reddish brown, very fine to fine grain, saturated				9.3	
19	Acetate Sleeve			- fine grain, dark brown, saturated, medium dense				7.8	
20	Acetate Sleeve								
21	Acetate Sleeve							NR	
22	Acetate Sleeve			- no recovery					
23	Acetate Sleeve							NR	
24	Acetate Sleeve		Sand	SAND: Tan, fine grain, dense, saturated					
25	Acetate Sleeve							6.7	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-7 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/30/2015 **Drilling Completed:** 9/30/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
27							4.5	
28		2.7						
29				- no recovery			NR	
30				SAND: Light gray, fine grain, loose, saturated				
31							0.9	
32								
33		2.7					1.9	
34								
35				- fine grain, gray, saturated			0.0	
36								
37				- some silt - fine grain sand clay mix			0.4	
38		3.0		- fine to coarse grain				
39				CLAY: Gray, damp, sticky, very soft			5.2	
40				- 4 inch sandy clay layer, soft				
41				- clay			1.0	
42								
43		4.0					2.1	
44				SILTY SAND: Dark gray, trace of clay, very fine grain - fine grain, light gray, saturated, dense				
45							0.5	
46				- fine grain, brown, dense, wet				
47							5.2	
48		3.0						
49				- sandy clay mix SHALEY CLAY: Firm - Total Depth 50 ft bls; Background PID 0.0 ppm.			1.7	
50								

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-8 Project No.: Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi Drilling Started: 9/30/2015 Drilling Completed: 9/30/2015

Land-Surface Elev.: Surveyed: Estimated: Datum:

Drilling Fluid: None Drilling Method Used: HA 1-5'/Direct Push

Drilling Contractor: Devonlan Driller: Lonny Helper: Derrick/Tremaine

Prepared By: G. Cook Hammer Weight: Hammer Drop (inches):

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
0	Hand Auger		Fill	FILL: Asphalt				
1	Hand Auger	2	Silt	SILT: Brown, dark brown, ferrous nodules, dry, loose			28.2	Sampled.
2	Hand Auger		Clayey Silt	CLAYEY SILT: Brown, dark brown, ferrous nodules and stain, dry				
3	Hand Auger	2	Clayey Silt				22.6	
4	Hand Auger		Clayey Silt	- increase in clay				
5	Hand Auger	1	Silty Clay	SILTY CLAY: Brown, dark brown, ferrous nodules, damp, stiff			20.8	
7	Acetate Sleeve		Silty Clay				11.2	
8	Acetate Sleeve	4.75	Silty Clay					
9	Acetate Sleeve		Silty Clay	- 3 inch sandy clay layer, dry			13.3	
11	Acetate Sleeve			- no recovery			NR	
12	Acetate Sleeve		Clayey Sand	CLAYEY SAND: With some silt, damp, medium dense				
13	Acetate Sleeve	2.5	Clayey Sand				4.1	
14	Acetate Sleeve		Sand	SAND: Very fine to fine grain, tan, loose, dry				
15	Acetate Sleeve		Sand				6.5	
17	Acetate Sleeve			- no recovery			NR	▽
18	Acetate Sleeve	2.0	Sand	SAND: Tan, fine grain, medium dense, wet				
19	Acetate Sleeve		Sand				3.4	
21	Acetate Sleeve		Sand				7.1	
22	Acetate Sleeve		Sand	- brown, dark brown, very fine to fine grain, some silt, saturated				
23	Acetate Sleeve	3.0	Sand				7.0	
24	Acetate Sleeve			- no recovery				
25	Acetate Sleeve						NR	

SAMPLE / CORE LOG

Boring/Well: VAP-8 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 9/30/2015 **Drilling Completed:** 9/30/2015

Land-Surface Elev.: **Surveyed:** **Estimated:** **Datum:**

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** **Hammer Drop (inches):**

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
27–28		2.25		- no recovery			NR	
28–30			Silty Sand	SILTY SAND: Gray, fine to coarse grain - 6 inch sandy clay layer, dense, very soft, dark brown			10.5	
30–32				- no recovery			NR	
32–35		3.25	Sand	SAND: Light gray, fine grain, some silt, medium dense, saturated			9.6	
35–36			Sand				8.3	
37–38		4.0	Sand	- saturated			6.6	
39–40			Sand				6.1	
40–41			Silty Sand	SILTY SAND: Dark gray, very fine grain, saturated			8.0	
42			Silty Sand	- silty sand clay mix				
43–44		3.75	Silty Sand	- 3 inch silty sand clay layer, damp, soft			6.9	
45–46			Silty Sand				8.4	
47			Silty Sand				8.3	
48			Silty Sand	- clay sand mix				
49–50			Silty Sand	- bottom 3 inches shaley clay layer - Total Depth 50 ft bls; Background PID 0.0 ppm.			7.8	

SAMPLE / CORE LOG

Boring/Well: VAP-9 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 10/1/2015 **Drilling Completed:** 10/1/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
0				FILL: Asphalt (silt)				
1		2		SILT: Gray and brown, dry, loose			6.0	
3		2		- ferrous stain and nodules, dry, loose			234	Sampled.
4				CLAYEY SILT: Light gray and brown, trace of clay, ferrous nodules and stain, dry				
5		1					2.5	
7				- increase in dark brown clay, dry, soft				
7				SILTY CLAY: Dark brown, ferrous nodules, dry, soft			3.5	
8		5.0						
9							6.9	
11							10.9	
13		3.25						
14				- increase in clay, very stiff, hard			11.4	
15				SILTY SAND: Light gray, dense, dry - brown			62.1	▽
16				- wet				
17				SAND: Very fine to fine grain, brown, medium dense, saturated			35.2	
18		3.0						
19							55.5	
21							190.0	
23		3.0		- fine to coarse grain, saturated			7.7	
25				- no recovery			NR	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-9 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 10/1/2015 **Drilling Completed:** 10/1/2015

Land-Surface Elev.: **Surveyed:** **Estimated:** **Datum:**

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Derrick/Tremaine

Prepared By: G. Cook **Hammer Weight:** **Hammer Drop (inches):**

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H	PP V	PID (ppm)	REMARKS
27								6.7	
28		3.0		SAND: Gray, fine grain, some silt, loose, saturated - 4 inch clay layer, gray, damp, soft					
29				- 3 inch silty clay layer, damp, very soft - very fine to fine grain, some silt - wood fragments				22.9	
30									
31				- no recovery				NR	
32		3.0		SAND: Silty, gray, fine grain, wet					
33								17.9	
34				- very fine to fine grain, saturated					
35								22.3	
36				- light gray, saturated					
37								3.0	
38		4.25							
39								19.2	
40									
41								0.0	
42									
43				- very fine to fine grain, saturated				15.8	
44				SANDY CLAY: Dark gray, damp, soft SAND: Fine to coarse grain, loose, saturated					
45								13.7	
46				- very fine grain, light gray, medium dense, saturated					
47								1.3	
48		4.0		- very fine to fine grain					
49				- fine grain, saturated				5.4	
50				- Total Depth 50 ft bls; Background PID 0.0 ppm.					

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-10 **Project No.:** Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi **Drilling Started:** 10/19/2015 **Drilling Completed:** 10/20/2015

Land-Surface Elev.: ______ **Surveyed:** ____ **Estimated:** ____ **Datum:** ______

Drilling Fluid: None **Drilling Method Used:** HA 1-5'/Direct Push

Drilling Contractor: Devonian **Driller:** Lonny **Helper:** Tremaine

Prepared By: G. Cook **Hammer Weight:** ______ **Hammer Drop (inches):** ______

Legend: Fill, Silty Clay, Silt, Sandy Silt, Silty Sand, Acetate Sleeve, Water First Encountered, Clay, Sandy Clay, Clayey Silt, Sand, Clayey Sand, Hand Auger, Water Level After 10 Minutes

SAMPLE DEPTH (ft)	SAMPLE TYPE	RECOVERY (ft)	SYMBOL	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
0–1	Hand Auger	1	Silt	SILT: Tan, grass cover, dry, loose			1,330	
1–2	Hand Auger	1	Silt					
2–3	Hand Auger	1	Silt	- tan and brown, ferrous nodules and stain, dry, loose			688	
3–4	Hand Auger	1	Silt					
4–5	Hand Auger	1	Silt				317	
5–7	Acetate Sleeve		Silt					
7–8.5	Acetate Sleeve	5.0	Silty Clay	SILTY CLAY: Brown, dark brown, ferrous stain, dry, soft - trace of fine grain sand, dry			252	
8.5–9.5	Acetate Sleeve		Silty Sand	SILTY SAND: Very fine grain, brown, dry, loose			177	
9.5–13	Acetate Sleeve	3.0	Sand	SAND: Tan, very fine grain, dry, loose - some silt, dry - very fine to fine grain, brown and tan, dry, loose - damp			33.2 96.1	
13–15	Acetate Sleeve			- no recovery				
15–18	Acetate Sleeve	3.0	Sand	SAND: Very fine to fine grain, some silt, tan, damp - very fine to fine grain, wet - dark brown			73.4 120	Water First Encountered
18–20	Acetate Sleeve			- no recovery			NR	
20–25	Acetate Sleeve	4.0	Sand	SAND: Tan, fine to medium grain, wet, slightly compacted, wet - brown, medium grain, wet - fine grain, brown, saturated			50.3 147 148	

ARCADIS Design & Consultancy for natural and built assets

SAMPLE / CORE LOG

Boring/Well: VAP-10 Project No.: Grenada Manufacturing/LA003307.0001.00005

Site Location: Grenada, Mississippi Drilling Started: 10/19/2015 Drilling Completed: 10/20/2015

Land-Surface Elev.: ______ Surveyed: ______ Estimated: ______ Datum: ______

Drilling Fluid: None Drilling Method Used: HA 1-5'/Direct Push

Drilling Contractor: Devonian Driller: Lonny Helper: Tremaine

Prepared By: G. Cook Hammer Weight: ______ Hammer Drop (inches): ______

Fill | Silty Clay | Silt | Sandy Silt | Silty Sand | Acetate Sleeve | Water First Encountered
Clay | Sandy Clay | Clayey Silt | Sand | Clayey Sand | Hand Auger | Water Level After 10 Minutes

SAMPLE DEPTH (ft)	RECOVERY (ft)	VISUAL DESCRIPTION	USCS (LL/PL/PI)	PP H V	PID (ppm)	REMARKS
27–28	4.5	- tan, medium grain, wet - brown, medium to coarse grain, slightly compacted			59.8	
29–30		SILTY SAND: Tan, saturated, compacted			27.9	
30–31		SAND: Light gray, medium to coarse grain, saturated, loose			27.9	
32–34	5.0	- 3 inch silty clay layer, wet, very soft - gray, some silt, saturated - 2 inch silty clay layer, wet, very soft			14.8	
34–35		- very fine grain, gray, wet			11.9	
36–37		- coarse grain, saturated			11.0	
38	5.0					
39–40		SANDY CLAY: Gray, damp, soft SAND: Coarse, saturated, loose			12.9	
40–42		SILTY SAND: Gray, very fine to medium grain, wet, slightly compacted SANDY CLAY: Gray, soft, wet SILTY SAND: Gray, fine to medium grain, compacted, wet			10.4	
43–44	5.0	- wet			10.6	
44–45		SILTY CLAY: Gray, trace of very fine grain sand, damp, soft				
45–46		SILTY SAND: Gray, very fine grain, wet			11.9	
46–47		- wet			14.6	
48–49		- damp				
49–50		- Total Depth 50 ft bls; Background PID 0.0 ppm.			12.3	

APPENDIX H

Soil Gas, Indoor Air, and Sub-Slab Vapor Data Validation Reports

Grenada Manufacturing

Data Review

GRENADA, MISSISSIPPI

Volatile Analysis

SDG #1509512

Analyses Performed By:
Eurofins Air Toxics Ltd.
Folsom, California

Report: #24462R
Review Level: Tier III
Project: LA003307.0001.00007

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1509512 for samples collected in association with the Grenada Manufacturing site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
1-AA(092215)	1509512-01	Air	9/22/2015		X				
2-AA(092215)	1509512-02	Air	9/22/2015		X				
6-IA(092215)	1509512-03	Air	9/22/2015		X				
1-IA(092215)	1509512-04	Air	9/22/2015		X				
5-IA(092215)	1509512-05	Air	9/22/2015		X				
2-IA(092215)	1509512-06	Air	9/22/2015		X				
3-IA(092215)	1509512-07	Air	9/22/2015		X				
4-IA(092215)	1509512-08	Air	9/22/2015		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Sample receipt condition		X		X	
Requested analyses and sample results		X		X	
Collection Technique (grab, composite, etc.)		X		X	
Methods of analysis		X		X	
Reporting limits		X		X	
Sample collection date		X		X	
Laboratory sample received date		X		X	
Sample preservation verification (as applicable)		X		X	
Sample preparation/extraction/analysis dates		X		X	
Fully executed Chain-of-Custody (COC) form completed		X		X	
Narrative summary of QA or sample problems provided		X		X	
Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
EPA TO-15 and EPA TO-15-SIM	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples met return canister pressure criteria and were analyzed within the specified holding time.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 24-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
1-AA(092215) 2-AA(092215) 6-IA(092215) 1-IA(092215) 5-IA(092215) 2-IA(092215) 3-IA(092215) 4-IA(092215)	ICAL %RSD	1,2,4-Trimethylbenzene	32.9%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 30%	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >30% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >30% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

1 RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketenes, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the established acceptance limits of 70% to 130%.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

8. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A laboratory duplicate was not performed on a sample location within this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 100% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-1”Hg)		X		X	
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
C. Trip blanks					X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Field/Lab Duplicate (%D)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					

%RSD Percent relative difference
%R Percent recovery
RPD Relative percent difference
%D Percent difference

VALIDATION PERFORMED BY: Jennifer Singer

SIGNATURE: Jennifer A Singer

DATE: November 2, 2015

PEER REVIEW BY: Dennis Capria

DATE: November 4, 2015

CORRECTED SAMPLE ANALYSIS DATA SHEETS AND COCs

eurofins | Air Toxics

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager Rob Lippencamp
Collected by: (Print and Sign) R. Wessale / M. Head
Company ARCADIS Email rob.lippencamp@arcadis.com
Address 132 E. Washington St Ste 600 City Indianapolis State IN Zip 46204
Phone 317-231-6500 Fax 317-2316514

Project Info:
P.O. # IN000899.2013
Project # IN000899.2013
Project Name Greenware Manufacturing

Turn Around Time: ☒ Normal ☐ Rush specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	1-AA (092215)	6L1237	9-22-15/9-23-15	1044-1043	TO-15, Project List	30	9		
02A	2-AA (092215)	5L34325	9-22-15/9-23-15	~~1051~~ 1612-1617	TO-15, Project List	30	7.25		
03A	6-IA (092215)	308400	9-22-15/9-23-15	1105-1058	TO-15, Project List	30	7.5		
04A	1-IA (092215)	~~12077~~ 34481	9-22-15/9-23-15	1206-1202	TO-15, Project List	30	~~30~~ 7.5		
	~~1-DUP-IA (092215)~~	~~34481~~ 12077	~~9-22-15/9-23-15~~	~~1206-1202~~	~~TO-15, Project List~~	~~30~~	~~30~~		
05A	5-IA (092215)	35166	9-22-15/9-23-15	1303-1305	TO-15, Project List	30	9.5		
06A	2-IA (092215)	34356	9-22-15/9-23-15	1417-1408	TO-15, Project List	30	7.5		
07A	3-IA (092215)	33980	9-22-15/9-23-15	1533-1533	TO-15, Project List	30	7		
08A	4-IA (092215)	33877	9-22-15/9-23-15	1647-1647	TO-15 Project List	30	7		

mh 9-23-15

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
[signature]	9-24-15 1500	Candice McCartney EAR	9/30/15 1235

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		N/A	Good	Yes No None (Yes circled)	1509512

Form 1293 rev.11

eurofins | Air Toxics

Client Sample ID: 1-AA(092215)

Lab ID#: 1509512-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100507**	**Date of Collection:**	**9/23/15 10:43:00 AM**
Dil. Factor:	**1.91**	**Date of Analysis:**	**10/5/15 01:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.38	Not Detected	1.3	Not Detected
1,2,4-Trimethylbenzene	0.19	Not Detected UJ	0.94	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: 1-AA(092215)

Lab ID#: 1509512-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100507sim**	**Date of Collection:**	**9/23/15 10:43:00 AM**
Dil. Factor:	**1.91**	**Date of Analysis:**	**10/5/15 01:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	0.040	0.049	0.10
1,1-Dichloroethene	0.019	Not Detected	0.076	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
cis-1,2-Dichloroethene	0.038	0.21	0.15	0.85
Chloroform	0.038	Not Detected	0.19	Not Detected
Benzene	0.096	0.095 J	0.30	0.30 J
1,2-Dichloroethane	0.038	Not Detected	0.15	Not Detected
Trichloroethene	0.038	0.22	0.20	1.2
Toluene	0.038	0.18	0.14	0.66
1,1,2-Trichloroethane	0.038	Not Detected	0.21	Not Detected
Tetrachloroethene	0.038	Not Detected	0.26	Not Detected
Ethyl Benzene	0.038	Not Detected	0.16	Not Detected
m,p-Xylene	0.076	0.12	0.33	0.52
o-Xylene	0.038	0.066	0.16	0.29

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	92	70-130

eurofins | Air Toxics

Client Sample ID: 2-AA(092215)

Lab ID#: 1509512-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100508**	**Date of Collection:**	**9/23/15 4:17:00 PM**
Dil. Factor:	**1.83**	**Date of Analysis:**	**10/5/15 02:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.37	Not Detected	1.3	Not Detected
1,2,4-Trimethylbenzene	0.18	Not Detected UJ	0.90	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	93	70-130

eurofins | Air Toxics

Client Sample ID: 2-AA(092215)

Lab ID#: 1509512-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100508sim**	**Date of Collection: 9/23/15 4:17:00 PM**
Dil. Factor:	**1.83**	**Date of Analysis: 10/5/15 02:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	0.018 J	0.047	0.046 J
1,1-Dichloroethene	0.018	Not Detected	0.072	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
cis-1,2-Dichloroethene	0.037	0.17	0.14	0.67
Chloroform	0.037	Not Detected	0.18	Not Detected
Benzene	0.092	0.099	0.29	0.32
1,2-Dichloroethane	0.037	Not Detected	0.15	Not Detected
Trichloroethene	0.037	0.19	0.20	1.0
Toluene	0.037	0.24	0.14	0.89
1,1,2-Trichloroethane	0.037	Not Detected	0.20	Not Detected
Tetrachloroethene	0.037	Not Detected	0.25	Not Detected
Ethyl Benzene	0.037	0.054	0.16	0.24
m,p-Xylene	0.073	0.19	0.32	0.83
o-Xylene	0.037	0.083	0.16	0.36

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: 6-IA(092215)

Lab ID#: 1509512-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100509**	**Date of Collection:**	**9/23/15 10:58:00 AM**
Dil. Factor:	**4.38**	**Date of Analysis:**	**10/5/15 03:37 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.88	Not Detected	3.0	Not Detected
1,2,4-Trimethylbenzene	0.44	Not Detected UJ	2.2	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: 6-IA(092215)

Lab ID#: 1509512-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100509sim**	**Date of Collection:**	**9/23/15 10:58:00 AM**
Dil. Factor:	**4.38**	**Date of Analysis:**	**10/5/15 03:37 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.044	Not Detected	0.11	Not Detected
1,1-Dichloroethene	0.044	Not Detected	0.17	Not Detected
trans-1,2-Dichloroethene	0.44	Not Detected	1.7	Not Detected
cis-1,2-Dichloroethene	0.088	0.097	0.35	0.38
Chloroform	0.088	0.12	0.43	0.56
Benzene	0.22	Not Detected	0.70	Not Detected
1,2-Dichloroethane	0.088	Not Detected	0.35	Not Detected
Trichloroethene	0.088	0.12	0.47	0.65
Toluene	0.088	1.0	0.33	3.9
1,1,2-Trichloroethane	0.088	Not Detected	0.48	Not Detected
Tetrachloroethene	0.088	Not Detected	0.59	Not Detected
Ethyl Benzene	0.088	0.14	0.38	0.63
m,p-Xylene	0.18	0.49	0.76	2.1
o-Xylene	0.088	0.23	0.38	1.0

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: 1-IA(092215)

Lab ID#: 1509512-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100510**	**Date of Collection:**	**9/23/15 12:02:00 PM**
Dil. Factor:	**4.58**	**Date of Analysis:**	**10/5/15 04:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.92	Not Detected	3.2	Not Detected
1,2,4-Trimethylbenzene	0.46	Not Detected UJ	2.2	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: 1-IA(092215)

Lab ID#: 1509512-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100510sim**	**Date of Collection:**	**9/23/15 12:02:00 PM**
Dil. Factor:	**4.58**	**Date of Analysis:**	**10/5/15 04:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.046	Not Detected	0.12	Not Detected
1,1-Dichloroethene	0.046	Not Detected	0.18	Not Detected
trans-1,2-Dichloroethene	0.46	Not Detected	1.8	Not Detected
cis-1,2-Dichloroethene	0.092	0.15	0.36	0.61
Chloroform	0.092	0.15	0.45	0.75
Benzene	0.23	1.2	0.73	3.8
1,2-Dichloroethane	0.092	0.21	0.37	0.84
Trichloroethene	0.092	0.20	0.49	1.1
Toluene	0.092	1.4	0.34	5.4
1,1,2-Trichloroethane	0.092	Not Detected	0.50	Not Detected
Tetrachloroethene	0.092	Not Detected	0.62	Not Detected
Ethyl Benzene	0.092	0.23	0.40	1.0
m,p-Xylene	0.18	0.59	0.80	2.6
o-Xylene	0.092	0.22	0.40	0.95

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: 5-IA(092215)

Lab ID#: 1509512-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100511**	**Date of Collection:**	**9/23/15 1:05:00 PM**
Dil. Factor:	**1.91**	**Date of Analysis:**	**10/5/15 05:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.38	0.59	1.3	2.0
1,2,4-Trimethylbenzene	0.19	Not Detected UJ	0.94	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: 5-IA(092215)

Lab ID#: 1509512-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100511sim**	**Date of Collection:**	**9/23/15 1:05:00 PM**
Dil. Factor:	**1.91**	**Date of Analysis:**	**10/5/15 05:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	0.024	0.049	0.062
1,1-Dichloroethene	0.019	Not Detected	0.076	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
cis-1,2-Dichloroethene	0.038	0.16	0.15	0.65
Chloroform	0.038	0.044	0.19	0.21
Benzene	0.096	0.27	0.30	0.86
1,2-Dichloroethane	0.038	0.044	0.15	0.18
Trichloroethene	0.038	0.16	0.20	0.86
Toluene	0.038	0.70	0.14	2.6
1,1,2-Trichloroethane	0.038	Not Detected	0.21	Not Detected
Tetrachloroethene	0.038	Not Detected	0.26	Not Detected
Ethyl Benzene	0.038	0.12	0.16	0.55
m,p-Xylene	0.076	0.37	0.33	1.6
o-Xylene	0.038	0.13	0.16	0.56

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: 2-IA(092215)

Lab ID#: 1509512-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100512**	**Date of Collection:**	**9/23/15 2:08:00 PM**
Dil. Factor:	**4.38**	**Date of Analysis:**	**10/5/15 06:04 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.88	Not Detected	3.0	Not Detected
1,2,4-Trimethylbenzene	0.44	Not Detected UJ	2.2	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: 2-IA(092215)

Lab ID#: 1509512-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100512sim**	**Date of Collection:**	**9/23/15 2:08:00 PM**
Dil. Factor:	**4.38**	**Date of Analysis:**	**10/5/15 06:04 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.044	Not Detected	0.11	Not Detected
1,1-Dichloroethene	0.044	Not Detected	0.17	Not Detected
trans-1,2-Dichloroethene	0.44	Not Detected	1.7	Not Detected
cis-1,2-Dichloroethene	0.088	0.14	0.35	0.57
Chloroform	0.088	0.19	0.43	0.91
Benzene	0.22	0.25	0.70	0.81
1,2-Dichloroethane	0.088	1.7	0.35	7.0
Trichloroethene	0.088	0.20	0.47	1.1
Toluene	0.088	2.1	0.33	7.9
1,1,2-Trichloroethane	0.088	Not Detected	0.48	Not Detected
Tetrachloroethene	0.088	Not Detected	0.59	Not Detected
Ethyl Benzene	0.088	0.20	0.38	0.85
m,p-Xylene	0.18	0.43	0.76	1.9
o-Xylene	0.088	0.25	0.38	1.1

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: 3-IA(092215)

Lab ID#: 1509512-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100513**	**Date of Collection:**	**9/23/15 3:33:00 PM**
Dil. Factor:	**17.5**	**Date of Analysis:**	**10/5/15 06:49 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	3.5	Not Detected	12	Not Detected
1,2,4-Trimethylbenzene	1.8	Not Detected UJ	8.6	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: 3-IA(092215)

Lab ID#: 1509512-07B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100513sim**	**Date of Collection:**	**9/23/15 3:33:00 PM**
Dil. Factor:	**17.5**	**Date of Analysis:**	**10/5/15 06:49 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.18	Not Detected	0.45	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.69	Not Detected
trans-1,2-Dichloroethene	1.8	Not Detected	6.9	Not Detected
cis-1,2-Dichloroethene	0.35	Not Detected	1.4	Not Detected
Chloroform	0.35	0.86	1.7	4.2
Benzene	0.88	Not Detected	2.8	Not Detected
1,2-Dichloroethane	0.35	Not Detected	1.4	Not Detected
Trichloroethene	0.35	Not Detected	1.9	Not Detected
Toluene	0.35	1.5	1.3	5.6
1,1,2-Trichloroethane	0.35	Not Detected	1.9	Not Detected
Tetrachloroethene	0.35	Not Detected	2.4	Not Detected
Ethyl Benzene	0.35	Not Detected	1.5	Not Detected
m,p-Xylene	0.70	Not Detected	3.0	Not Detected
o-Xylene	0.35	Not Detected	1.5	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: 4-IA(092215)

Lab ID#: 1509512-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100514**	**Date of Collection:**	**9/23/15 4:47:00 PM**
Dil. Factor:	**1.79**	**Date of Analysis:**	**10/5/15 07:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methylene Chloride	0.36	Not Detected	1.2	Not Detected
1,2,4-Trimethylbenzene	0.18	Not Detected UJ	0.88	Not Detected UJ

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: 4-IA(092215)

Lab ID#: 1509512-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v100514sim**	**Date of Collection:**	**9/23/15 4:47:00 PM**
Dil. Factor:	**1.79**	**Date of Analysis:**	**10/5/15 07:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	0.031	0.046	0.079
1,1-Dichloroethene	0.018	Not Detected	0.071	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
cis-1,2-Dichloroethene	0.036	0.14	0.14	0.58
Chloroform	0.036	0.19	0.17	0.94
Benzene	0.090	0.58	0.28	1.8
1,2-Dichloroethane	0.036	0.30	0.14	1.2
Trichloroethene	0.036	0.18	0.19	0.99
Toluene	0.036	0.72	0.13	2.7
1,1,2-Trichloroethane	0.036	Not Detected	0.20	Not Detected
Tetrachloroethene	0.036	Not Detected	0.24	Not Detected
Ethyl Benzene	0.036	0.10	0.16	0.43
m,p-Xylene	0.072	0.26	0.31	1.1
o-Xylene	0.036	0.13	0.16	0.56

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

Grenada Manufacturing

Data Review

GRENADA, MISSISSIPPI

Volatile Analysis

SDG #1509345

Analyses Performed By:
Eurofins Air Toxics Ltd.
Folsom, California

Report: #24463R
Review Level: Tier III
Project: LA003307.0001.00007

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1509345 for samples collected in association with the Grenada Manufacturing site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
SG-2(091615)	1509345-01	Air	9/16/2015		X				
SG-1(091615)	1509345-02	Air	9/16/2015		X				
SG-3(091615)	1509345-03	Air	9/16/2015		X				
SG-5(091615)	1509345-04	Air	9/16/2015		X				
SG-6(091615)	1509345-05	Air	9/16/2015		X				
DUP-1(091615)	1509345-06	Air	9/16/2015	SG-5(091615)	X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Sample receipt condition		X		X	
Requested analyses and sample results		X		X	
Collection Technique (grab, composite, etc.)		X		X	
Methods of analysis		X		X	
Reporting limits		X		X	
Sample collection date		X		X	
Laboratory sample received date		X		X	
Sample preservation verification (as applicable)		X		X	
Sample preparation/extraction/analysis dates		X		X	
Fully executed Chain-of-Custody (COC) form completed		X		X	
Narrative summary of QA or sample problems provided		X		X	
Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
EPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples met return canister pressure criteria and were analyzed within the specified holding time.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 24-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SG-2(091615) SG-1(091615) SG-3(091615) SG-5(091615) SG-6(091615) DUP-1(091615)	CCV %D	1,2,4-Trimethylbenzene	-36.7%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 30%	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >30% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >30% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

1 RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketenes, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the established acceptance limits of 70% to 130%.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
SG-5(091615) SG-6(091615) DUP-1(091615)	Bromochloromethane	< LL but > 40%
	1,4-Difluororobenzene	AC
	Chlorobenzene-d5	

AC Acceptable

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< 40% but > 25%	Non-detect	UJ
	Detect	J
< 25%	Non-detect	R
	Detect	J

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

8. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A laboratory duplicate was not performed on a sample location within this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 100% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result ($\mu g/m^3$)	Duplicate Result ($\mu g/m^3$)	RPD
SG-5(091615)/ DUP-1(091615)	Benzene	8.3	6.8	AC
	Ethyl Benzene	13	13	
	o-Xylene	24	25	
	1,2,4-Trimethylbenzene	21	20	
	Chloroform	88	88	0.0%
	Toluene	30	30	0.0%
	m,p-Xylene	65	68	4.5%

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-1”Hg)		X		X	
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
C. Trip blanks					X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Field/Lab Duplicate (%D)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X	X		
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					

%RSD Percent relative difference
%R Percent recovery
RPD Relative percent difference
%D Percent difference

VALIDATION PERFORMED BY: Jennifer Singer

SIGNATURE: Jennifer A. Singer

DATE: October 19, 2015

PEER REVIEW BY: Dennis Capria

DATE: November 4, 2015

CORRECTED SAMPLE ANALYSIS DATA SHEETS AND COCs

eurofins | Air Toxics

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: ROB LAPPENCAMP
Collected by: (Print and Sign) RANDALL WOOSLEY
Company: ARCADIS
Email: ROB LAPPENCAMP
Address: 132 E. WASHINGTON STE 600 City: INDIANAPOLIS State: IN Zip: 46204
Phone: 317-231-6500 Fax: 317-231-6514

Project Info:
P.O. #: IN000899.2013
Project #: IN000899.2013
Project Name: GREMLAN MANUFACTURING

Turn Around Time:
☐ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SG-2 (091615)	31765	9-16-15	0755-0808	TO-15, PROJECT LIST	30	4.5		
02A	SG-1 (091615)	35559	9-16-15	0842-0854	TO-15, PROJECT LIST	30	6.5		
03A	SG-3 (091615)	37382	9-16-15	0933-0947	TO-15, PROJECT LIST	30	4.5		
04A	SG-5 (091615)	1L2717	9-16-15	1238-1252	TO-15, PROJECT LIST	30	5.0		
05A	SG-6 (091615)	33388	9-16-15	1410-1430	TO-15, PROJECT LIST	30	5.0		
06A	DUP-1 (091615)	1006	9-16-15	1238-1251	TO-15, PROJECT LIST	30	4.5		
07A	SG-4 (091715)	37397	9-17-15	0627-0653	TO-15, PROJECT LIST	30	5.5		
08A	SG-7 (091715)	1L2720	9-17-15	0709-0723	TO-15, PROJECT LIST	30	3.5		
09A	SG-8 (091715)	1L1784	9-17-15	0750-0803	TO-15, PROJECT LIST	30	4.5		

Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	Notes:
[signature] 9-18-15/0830	[signature] 9/21/15 1520	
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx		NA	Good	Yes (circled) No None	1509345

Form 1293 rev.11

eurofins | Air Toxics

Client Sample ID: SG-2 (091615)

Lab ID#: 1509345-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a092522**	**Date of Collection:**	**9/16/15 8:08:00 AM**
Dil. Factor:	**2.28**	**Date of Analysis:**	**9/25/15 11:49 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Methylene Chloride	11	Not Detected	40	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Chloroform	1.1	Not Detected	5.6	Not Detected
Benzene	1.1	1.8	3.6	5.6
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
Toluene	1.1	Not Detected	4.3	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	5.0	Not Detected
o-Xylene	1.1	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected UJ	5.6	Not Detected UJ

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: SG-1 (091615)

Lab ID#: 1509345-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a092523**	**Date of Collection: 9/16/15 8:54:00 AM**
Dil. Factor:	**2.48**	**Date of Analysis: 9/26/15 12:16 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
Benzene	1.2	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
Toluene	1.2	Not Detected	4.7	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
Ethyl Benzene	1.2	1.8	5.4	7.6
m,p-Xylene	1.2	3.5	5.4	15
o-Xylene	1.2	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected UJ	6.1	Not Detected UJ

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: SG-3 (091615)

Lab ID#: 1509345-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a092524**	**Date of Collection:**	**9/16/15 9:47:00 AM**
Dil. Factor:	**2.34**	**Date of Analysis:**	**9/26/15 12:57 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Chloroform	1.2	1.9	5.7	9.1
Benzene	1.2	2.9	3.7	9.4
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected UJ	5.8	Not Detected UJ

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	104	70-130

eurofins | Air Toxics

Client Sample ID: SG-5 (091615)

Lab ID#: 1509345-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a092525**	**Date of Collection:**	**9/16/15 12:52:00 PM**
Dil. Factor:	**2.59**	**Date of Analysis:**	**9/26/15 01:23 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected UJ	3.3	Not Detected UJ
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Methylene Chloride	13	Not Detected	45	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Chloroform	1.3	18 J	6.3	88 J
Benzene	1.3	2.6 J	4.1	8.3 J
1,2-Dichloroethane	1.3	Not Detected UJ	5.2	Not Detected UJ
Trichloroethene	1.3	Not Detected UJ	7.0	Not Detected UJ
Toluene	1.3	7.9 J	4.9	30 J
1,1,2-Trichloroethane	1.3	Not Detected UJ	7.1	Not Detected UJ
Tetrachloroethene	1.3	Not Detected UJ	8.8	Not Detected UJ
Ethyl Benzene	1.3	3.1 J	5.6	13 J
m,p-Xylene	1.3	15	5.6	65
o-Xylene	1.3	5.5	5.6	24
1,2,4-Trimethylbenzene	1.3	4.3 ~~J0~~	6.4	21 ~~J0~~

J0 = Estimated value due to bias in the CCV.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: SG-6 (091615)

Lab ID#: 1509345-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a092526**	**Date of Collection:**	**9/16/15 2:30:00 PM**
Dil. Factor:	**2.63**	**Date of Analysis:**	**9/26/15 02:05 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected UJ	3.4	Not Detected UJ
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Methylene Chloride	13	Not Detected	46	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Chloroform	1.3	20 J	6.4	97 J
Benzene	1.3	7.1 J	4.2	23 J
1,2-Dichloroethane	1.3	Not Detected UJ	5.3	Not Detected UJ
Trichloroethene	1.3	Not Detected UJ	7.1	Not Detected UJ
Toluene	1.3	5.5 J	5.0	21 J
1,1,2-Trichloroethane	1.3	Not Detected UJ	7.2	Not Detected UJ
Tetrachloroethene	1.3	Not Detected UJ	8.9	Not Detected UJ
Ethyl Benzene	1.3	2.0 J	5.7	8.5 J
m,p-Xylene	1.3	11	5.7	48
o-Xylene	1.3	3.6	5.7	16
1,2,4-Trimethylbenzene	1.3	3.0 ~~J0~~	6.5	15 ~~J0~~

J0 = Estimated value due to bias in the CCV.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	111	70-130
1,2-Dichloroethane-d4	113	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: DUP-1 (091615)

Lab ID#: 1509345-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a092527**	**Date of Collection:**	**9/16/15 12:51:00 PM**
Dil. Factor:	**2.48**	**Date of Analysis:**	**9/26/15 02:31 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected UJ	3.2	Not Detected UJ
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Chloroform	1.2	18 J	6.0	88 J
Benzene	1.2	2.1 J	4.0	6.8 J
1,2-Dichloroethane	1.2	Not Detected UJ	5.0	Not Detected UJ
Trichloroethene	1.2	Not Detected UJ	6.7	Not Detected UJ
Toluene	1.2	7.9 J	4.7	30 J
1,1,2-Trichloroethane	1.2	Not Detected UJ	6.8	Not Detected UJ
Tetrachloroethene	1.2	Not Detected UJ	8.4	Not Detected UJ
Ethyl Benzene	1.2	3.1 J	5.4	13 J
m,p-Xylene	1.2	16	5.4	68
o-Xylene	1.2	5.8	5.4	25
1,2,4-Trimethylbenzene	1.2	4.0 ~~J0~~	6.1	20 ~~J0~~

J0 = Estimated value due to bias in the CCV.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	113	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	103	70-130

Grenada Manufacturing

Data Review

GRENADA, MISSISSIPPI

Volatile Analysis

SDG #1509511

Analyses Performed By:
Eurofins Air Toxics Ltd.
Folsom, California

Report: #24464R
Review Level: Tier III
Project: LA003307.0001.00007

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1509511 for samples collected in association with the Grenada Manufacturing site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
6-SS(092315)	1509511-01	Air	9/23/2015		X				
1-SS(092315)	1509511-02	Air	9/23/2015		X				
1-DUP-SS(092315)	1509511-03	Air	9/23/2015	1-SS(092315)	X				
5-SS(092315)	1509511-04	Air	9/23/2015		X				
2-SS(092315)	1509511-05	Air	9/23/2015		X				
3-SS(092315)	1509511-06	Air	9/23/2015		X				
4-SS(092315)	1509511-07	Air	9/23/2015		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Sample receipt condition		X		X	
Requested analyses and sample results		X		X	
Collection Technique (grab, composite, etc.)		X		X	
Methods of analysis		X		X	
Reporting limits		X		X	
Sample collection date		X		X	
Laboratory sample received date		X		X	
Sample preservation verification (as applicable)		X		X	
Sample preparation/extraction/analysis dates		X		X	
Fully executed Chain-of-Custody (COC) form completed		X		X	
Narrative summary of QA or sample problems provided		X		X	
Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
EPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples met return canister pressure criteria and were analyzed within the specified holding time.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 24-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the established acceptance limits of 70% to 130%.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

8. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A laboratory duplicate was not performed on a sample location within this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 100% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result ($\mu g/m^3$)	Duplicate Result ($\mu g/m^3$)	RPD
1-SS(092315)/ 1-DUP-SS(092315)	Trichloroethene	6.6 U	22	AC
	Tetrachloroethene	8.5	8.0 U	

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-1"Hg)		X		X	
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
C. Trip blanks					X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					

%RSD Percent relative difference
%R Percent recovery
RPD Relative percent difference
%D Percent difference

VALIDATION PERFORMED BY: Jennifer Singer

SIGNATURE: Jennifer A. Singer

DATE: November 2, 2015

PEER REVIEW BY: Dennis Capria

DATE: November 4, 2015

CORRECTED SAMPLE ANALYSIS DATA SHEETS AND COCs

eurofins | Air Toxics

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager: ROB UPPENCAMP
Collected by: (Print and Sign) R WOODRUFF / M HEAP
Company: ARCADIS Email: rob.uppencamp@arcadis.com
Address: 132 E. WASHINGTON SUITE 600 City: INPLS State: IN Zip: 46204
Phone: 317-231-6500 Fax: 317-231-6514

Project Info:
P.O. #: LA003307.0001
Project #: LA003307.0001
Project Name: Grenada Manufacturing

Turn Around Time: ☒ Normal ☐ Rush ______ specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	6-SS (092315)	31782	9-23-15	1117/1130	TO-15, Project List	30	4.5		
02A	1-SS (092315)	12 1624	↓	1216/1227	TO-15 Project List	30	5.75		
03A	1-DUP-SS (092315)	34618	↓	1216/1230	TO-15 Project List	30	5		
04A	5-SS (092315)	1358	↓	1319/1332	TO-15 Project List	30	5		
05A	2-SS (092315)	12 1901	↓	1423/1439	TO-15 Project List	30	4.5		
06A	3-SS (092315)	15794	↓	1547/1601	TO-15 Project List	30	7		
07A	4-SS (092315)	36399	↓	1700/1713	TO-15 Project List	30	5		

Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	Notes:
[signature] 9-24-15 1500	Candice K Cortney EAZ 9/30/15 1235	
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		N/A	Good	Yes No None	1509511

Form 1293 rev.11

eurofins | Air Toxics

Client Sample ID: 6-SS(092315)

Lab ID#: 1509511-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100223**	**Date of Collection:**	**9/23/15 11:30:00 AM**
Dil. Factor:	**2.34**	**Date of Analysis:**	**10/2/15 10:45 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Chloroform	1.2	28	5.7	140
Benzene	1.2	Not Detected	3.7	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	1.2	4.4	4.7
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	91	70-130

eurofins | Air Toxics

Client Sample ID: 1-SS(092315)

Lab ID#: 1509511-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100224**	**Date of Collection:**	**9/23/15 12:27:00 PM**
Dil. Factor:	**2.44**	**Date of Analysis:**	**10/2/15 11:21 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
Toluene	1.2	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	1.2	8.3	8.5
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
m,p-Xylene	1.2	Not Detected	5.3	Not Detected
o-Xylene	1.2	Not Detected	5.3	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	92	70-130

Client Sample ID: 1-DUP-SS(092315)

Lab ID#: 1509511-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100231**	**Date of Collection:**	**9/23/15 12:30:00 PM**
Dil. Factor:	**2.35**	**Date of Analysis:**	**10/3/15 07:37 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	4.1	6.3	22
Toluene	1.2	Not Detected	4.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	92	70-130

eurofins | Air Toxics

Client Sample ID: 5-SS(092315)

Lab ID#: 1509511-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100226**	**Date of Collection:**	**9/23/15 1:32:00 PM**
Dil. Factor:	**2.38**	**Date of Analysis:**	**10/3/15 12:20 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Chloroform	1.2	Not Detected	5.8	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	Not Detected	5.2	Not Detected
o-Xylene	1.2	Not Detected	5.2	Not Detected
1,2,4-Trimethylbenzene	1.2	1.3	5.8	6.6

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: 2-SS(092315)

Lab ID#: 1509511-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100227**	**Date of Collection:**	**9/23/15 2:39:00 PM**
Dil. Factor:	**2.34**	**Date of Analysis:**	**10/3/15 12:44 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.7	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	1.8	4.4	6.9
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: 3-SS(092315)

Lab ID#: 1509511-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100230**	**Date of Collection: 9/23/15 4:01:00 PM**
Dil. Factor:	**2.28**	**Date of Analysis: 10/3/15 06:39 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Methylene Chloride	11	Not Detected	40	Not Detected
trans-1,2-Dichloroethene	1.1	3.1	4.5	12
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Chloroform	1.1	Not Detected	5.6	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
Toluene	1.1	Not Detected	4.3	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	5.0	Not Detected
o-Xylene	1.1	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	88	70-130

eurofins | Air Toxics

Client Sample ID: 4-SS(092315)

Lab ID#: 1509511-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17100229**	**Date of Collection: 9/23/15 5:13:00 PM**
Dil. Factor:	**2.33**	**Date of Analysis: 10/3/15 01:43 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Methylene Chloride	12	Not Detected	40	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.7	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	1.2	7.9	7.9
Ethyl Benzene	1.2	Not Detected	5.0	Not Detected
m,p-Xylene	1.2	Not Detected	5.0	Not Detected
o-Xylene	1.2	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	102	70-130

Grenada Manufacturing

Data Review

GRENADA, MISSISSIPPI

Volatile Analysis

SDG #1510233

Analyses Performed By:
Eurofins Air Toxics Ltd.
Folsom, California

Report: #24469R
Review Level: Tier III
Project: LA003307.0001.00007

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1510233 for samples collected in association with the Grenada Manufacturing site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
SG-4(100715)	1510233-01	Air	10/7/2015		X				
SG-7(100715)	1510233-02	Air	10/7/2015		X				
SG-8(100715)	1510233-03	Air	10/7/2015		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Sample receipt condition		X		X	
Requested analyses and sample results		X		X	
Collection Technique (grab, composite, etc.)		X		X	
Methods of analysis		X		X	
Reporting limits		X		X	
Sample collection date		X		X	
Laboratory sample received date		X		X	
Sample preservation verification (as applicable)		X		X	
Sample preparation/extraction/analysis dates		X		X	
Fully executed Chain-of-Custody (COC) form completed		X		X	
Narrative summary of QA or sample problems provided		X		X	
Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
EPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples met return canister pressure criteria and were analyzed within the specified holding time.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 24-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the established acceptance limits of 70% to 130%.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

8. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A laboratory duplicate was not performed on a sample location within this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 100% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-1"Hg)		X		X	
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
C. Trip blanks					X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Field/Lab Duplicate (%D)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					

%RSD Percent relative difference
%R Percent recovery
RPD Relative percent difference
%D Percent difference

VALIDATION PERFORMED BY: Jennifer Singer

SIGNATURE: Jennifer A. Singer

DATE: November 2, 2015

PEER REVIEW BY: Dennis Capria

DATE: November 4, 2015

CORRECTED SAMPLE ANALYSIS DATA SHEETS AND COCs

eurofins | Air Toxics

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager ROB UPPENCAMP / MARDE HEAP
Collected by: (Print and Sign) RANDALL WOODRUFF
Company ARCADIS Email MARDE HEAP
Address 132 E. WASHINGTON ST STE 600 City INDIANAPOLIS State IN Zip 46204
Phone 317-231-6500 Fax 317-231-6514

Project Info:
P.O. # LA003307.0001.00004
Project # LA003307.0001.00004
Project Name GRENADA MANUFACTURING

Turn Around Time: ☒ Normal ☐ Rush ____ specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SG-4 (100715)	N 2140	10-7-15	1506-1520	TO-15, PROJECT LIST	30	5.0		
02A	SG-7 (100715)	36508	10-7-15	1528-1541	TO-15, PROJECT LIST	30	5.25		
03A	SG-8 (100715)	37363	10-7-15	1533-1546	TO-15, PROJECT LIST	30	6.0		

Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	Notes:
10-9-15/0820	Candice Cortney EATL 10/12/15 1020	RESAMPLES DUE TO LAB ERROR
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		N/A	Good	Yes No None	1510233

eurofins | Air Toxics

Client Sample ID: SG-4 (100715)

Lab ID#: 1510233-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17101413**	**Date of Collection:**	**10/7/15 3:20:00 PM**
Dil. Factor:	**2.64**	**Date of Analysis:**	**10/14/15 08:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Methylene Chloride	13	Not Detected	46	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Chloroform	1.3	Not Detected	6.4	Not Detected
Benzene	1.3	Not Detected	4.2	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.3	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
Toluene	1.3	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Tetrachloroethene	1.3	Not Detected	9.0	Not Detected
Ethyl Benzene	1.3	Not Detected	5.7	Not Detected
m,p-Xylene	1.3	Not Detected	5.7	Not Detected
o-Xylene	1.3	Not Detected	5.7	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	91	70-130

eurofins | Air Toxics

Client Sample ID: SG-7 (100715)

Lab ID#: 1510233-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17101411**	**Date of Collection: 10/7/15 3:41:00 PM**
Dil. Factor:	**2.69**	**Date of Analysis: 10/14/15 07:18 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.3	Not Detected
Methylene Chloride	13	Not Detected	47	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.3	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.3	Not Detected
Chloroform	1.3	3.5	6.6	17
Benzene	1.3	Not Detected	4.3	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.4	Not Detected
Trichloroethene	1.3	Not Detected	7.2	Not Detected
Toluene	1.3	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.3	Not Detected
Tetrachloroethene	1.3	Not Detected	9.1	Not Detected
Ethyl Benzene	1.3	Not Detected	5.8	Not Detected
m,p-Xylene	1.3	3.0	5.8	13
o-Xylene	1.3	1.8	5.8	8.1
1,2,4-Trimethylbenzene	1.3	2.8	6.6	14

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	89	70-130

eurofins | Air Toxics

Client Sample ID: SG-8 (100715)
Lab ID#: 1510233-03A
EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17101409**	**Date of Collection: 10/7/15 3:46:00 PM**
Dil. Factor:	**2.64**	**Date of Analysis: 10/14/15 06:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Methylene Chloride	13	Not Detected	46	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Chloroform	1.3	Not Detected	6.4	Not Detected
Benzene	1.3	Not Detected	4.2	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.3	Not Detected
Trichloroethene	1.3	1.6	7.1	8.7
Toluene	1.3	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Tetrachloroethene	1.3	Not Detected	9.0	Not Detected
Ethyl Benzene	1.3	Not Detected	5.7	Not Detected
m,p-Xylene	1.3	Not Detected	5.7	Not Detected
o-Xylene	1.3	Not Detected	5.7	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	88	70-130

Arcadis U.S., Inc.

10352 Plaza Americana Drive

Baton Rouge, Louisiana 70816

Tel 225 292 1004

Fax 225 218 9677

www.arcadis.com